The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 87, No. 23 CHICAGO, ILLINOIS DECEMBER 4, 1926

THREE MILLION DEAFENED SCHOOL CHILDREN

THEIR DETECTION AND TREATMENT *

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Recent surveys of the condition of the hearing of school children in the United States indicate that more than 3,000,000 have hearing defects. In this paper the detection and the medical handling of these deafened children are discussed, and the results of some extensive tests given.

With experienced testers, it is a simple matter to examine children singly, and even the old "watch-tick" or "whispered speech" method of testing will yield fairly satisfactory results if each child is tested in a suitable and quiet room. However, testing one by one a large group of children by even these simple methods is very laborious. Some work has been done in several of the large cities by using such methods, but the work went so slowly that it was obviously impracticable to use it in schools generally. The data obtained from these tests showed that a large number of children are deafened, and indicated that much benefit might accrue to the sufferers and the nation if practical methods are devised for finding the deafened children and giving them the necessary attention. For these reasons the American Federation of Organizations for the Hard of Hearing appointed a committee to work out the best methods of handling the problem. The results reported in this paper are a part of the work of this committee. Dr. Horace Newhart of Minneapolis, Dr. Douglas MacFarlan of Philadelphia, and Dr. F. W. Bock of Rochester have cooperated with us in this work.

It was early recognized that new forms of apparatus especially adapted for testing the hearing in the schools would be necessary; therefore the committee sought the aid of the Bell Telephone Laboratories. This aid was obtained, and engineers of the company have worked in conjunction with the committee to produce a suitable apparatus.

Our experience with the methods previously used, namely, the "watch-tick" or "whispered speech" tests, indicates that, using them, a specialist can test about fifteen children in an hour, but the results obtained by one having little experience with testing are very unsatisfactory, even when a much longer time is used in making such tests.

The first apparatus developed by the Bell Telephone Laboratories was intended to replace the watch or acoumeter for making very quick tests, and is called the 3-A audiometer (fig. 1). It consists essentially of three parts connected together electrically; namely, a simple electrical generator called a buzzer, an electrical network called an attenuator, and a telephone receiver. The buzzer generates an electrical current having a large number of component frequencies which are scattered throughout the audible pitch range. The attenuator is a system of resistors arranged so that by turning a dial it is possible to change the intensity of sound issuing from the telephone receiver from the threshold of hearing to magnitudes as loud as the ear can stand. The dial is calibrated in sensation units (SU),[1] so that when it is adjusted to give the minimum sound that the child can hear, the hearing loss can be read directly from a scale on the dial.

Our experience with this instrument indicates that it will give results of considerably greater accuracy than can be obtained by the watch-tick test, and that it does not require specialists to operate it. After a few hours' practice any one with ordinary intelligence can obtain reliable results; but the speed of making the tests is only slightly greater than for the watch-tick tests, and was considered too slow for most survey work.

For obtaining increased speed, our attention was next concentrated on group methods of testing. An attempt was made to adapt the whispered speech test for group testing. As in any group of children chosen at random about 85 per cent will have normal hearing, it was thought that these normal ears could be used each time to calibrate the voice of the tester. If the intensity of the voice can be varied from values so loud that all can hear to values below the threshold of hearing, then the deafened child would be found if some means were devised to determine when each child heard the sounds. In the first method tried, simple numbers were whispered and the children were asked to write them on blanks prepared for the purpose. The intensity of the whispered speech was varied by increasing the distance, keeping the speaking intensity constant. If one increases the distance successively by the factors 1.4, 2, 2.8, 4, 5.6, 8, 11.2 and 16 times the original distance, then the intensity of the sound reaching the child's ear will decrease by steps of 3 sensation units, provided there are no sound reflections in the room.

With a group of forty children, which was found to be the most practical number to handle in a group, it

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. The sensation unit is now being used by a large number of otologists. A description of this unit showing how it is related to intensity is given by Fletcher, Harvey: New Methods and Apparatus for Testing the Acuity of Hearing, Laryngoscope 35: 501 (July) 1925.

is difficult to begin the test closer than about six steps. To reduce the intensity 21 sensation units one would have to back away sixty-seven steps, or approximately 200 feet. It is thus evident that a very large room is required for this test. This method was tried in one of the new school buildings in New York where such large rooms are available. It was tried both in a large assembly room and in a gymnasium. The results obtained showed that although the method was theoretically sound, it was entirely impracticable even when used by specialists. This is probably due to two causes. First, the varying noise conditions which are always encountered make it impossible for the children to hear the numbers correctly even when pronounced at fairly loud intensities. (In a large room, these extraneous noises are intensified as a result of the increased reverberation.) Secondly, there is the reflection of the speech sounds from the walls, floors and ceilings of the room. The quality of the whispered speech arriving at the ear becomes very much poorer as the distance between the speaker and the listener increases. Although the conditions in this school were probably much better than would be encountered in an average school, it was considered that the deafened children could not be selected from the results obtained. We still feel, however, that this method might be used to obtain fairly good results if a room which was very quiet and well damped with draperies and rugs and also very large was available for the test. Even with such an ideal room, however, the time required for making the tests and correcting the records is much longer than that required in the method finally adopted. This method is described below.

Fig. 1.—The 3-A audiometer.

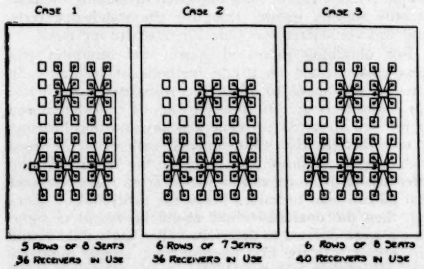


Fig. 2.—Seating arrangements and distribution schemes for different types of classrooms.

In the next group method, the children were tested in their class room. The same numbers were used as before, and an attempt was made to reduce the intensity of calling these numbers in steps corresponding to approximately 3 sensation units. It was not necessary that these steps be accurate, the main requirement being that the intensity of the last number be below the threshold of audibility for most of the children. This method also failed to indicate definitely those who were deafened. The results showed that some of the children who had normal hearing as determined by more refined methods had recorded scarcely any numbers correctly, while some of those who were deafened made comparatively good records.

As a refinement of this method, phonograph records of the numbers were made by the new electrical process developed by the Bell Telephone Laboratories. In the process of recording, an attenuator was introduced into the electrical circuit in such a way that the intensity of each successive number recorded was definitely 3 sensation units lower than the preceding one. An ordinary phonograph set up in front of the class was used to play the record, thus serving as a substitute for the speaker.

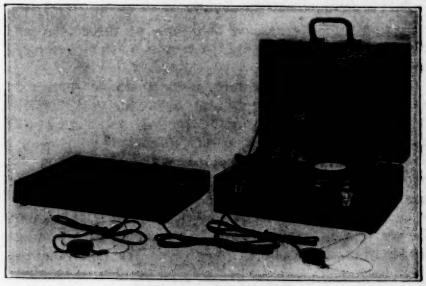


Fig. 3.—Equipment.

This eliminated variations in the intensity and quality of the speaker's voice, and also caused the intensity to decrease in definite steps. Because of the noise conditions encountered, the children made very erratic records even with this refinement.

This method, in common with all the other group methods described, has the serious defect that by its use it is almost impossible to detect cases of hearing loss in one ear when the other ear is normal. Subsequent tests revealed that a large percentage of the hearing defects occur in one ear only.

The group method that finally proved successful was a combination of the individual test and the group test. The phonograph record described above was used, but instead of projecting the sound into the room, the speech vibrations were taken off the record electrically and sent by means of connecting wires to a telephone receiver on each child's ear. Five distributing trays, each containing eight receivers, was found to be the most convenient method of distributing the receivers to the children. In figure 2 is shown the best method of distributing the receivers for the type of seating shown. These trays are connected by electrical conductor cords terminating in plugs. This arrangement simplifies the

process of making the connection. The equipment is shown in figure 3; in figure 4 the equipment is shown in use in the school room.

The particular arrangement of equipment, the kind of phonograph record and the form of the blank to be used by the children have evolved from the experience obtained in testing several thousand school children in various parts of the country. The blank form finally adopted for use by the child is shown in figure 5. After

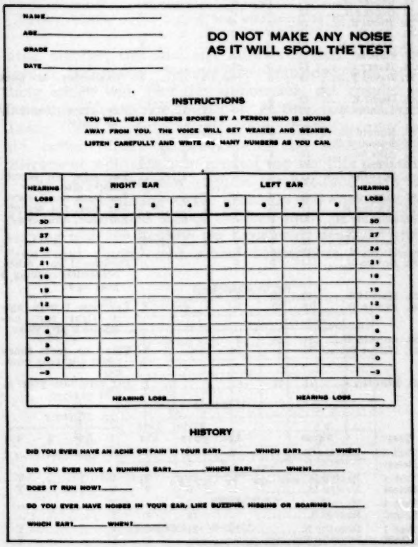
Fig. 4.—Use of equipment.

the telephone receivers have been distributed and properly adjusted on the right ears of the children to be tested, they are told that they are going to hear numbers called, first by a woman and then by a man, who seem to be moving farther and farther away, causing the spoken numbers to become fainter and fainter. The children are instructed to write as many of these numbers as they can hear. The phonograph is then started. The first thing that they hear from the phonograph is the following: "You are going to have your hearing tested. Write the numbers which you hear in column 1." Then they hear numbers coming from the telephone receiver, the intensity of each successive number group being 3 sensation units less than that of the preceding one. The test is given twice by a woman's voice, and then twice by a man's voice. The receivers are then changed to the left ears and the test is repeated. For testing the upper grades, a record having three-digit numbers on it is used, while for the lower grades a record having only two-digit numbers on it is used. It has been found impracticable to use this method for testing in grades below the second half of the second grade. We concluded that no group test could be used for these younger children. It was found that tests of these children with the 3-A audiometer were as convenient and rapid as any other hearing tests with which we are familiar.

Master sheets have been provided for correcting the papers for both the three-digit and two-digit test records. These sheets are arranged so that for comparison they may be placed alongside the numbers written on the blank form by the child. In figure 6 is shown a sample record sheet with the master sheet in place for correcting the results in column 1. For the three-digit records, the numbers are considered correct when two of the three digits are written correctly. Similarly with the two-digit records, when one digit of the two is correct the number is considered correct if the preceding numbers show that the pupil has probably heard the number. The hearing loss corresponds to the number found in the margin of the horizontal column containing the last number which was considered to be heard correctly.

It was found that with this apparatus and the method as outlined above, from seventy-five to 150 children an hour could be tested, depending on the degree of efficiency in organizing the children into groups of forty, and getting them to and from the class room provided for the tests.

In table 1 are shown the results from a hearing test of a typical class of thirty-eight children in a public school. This method of testing the hearing of school children has been used to make complete surveys in three public schools in New York City and one in Poughkeepsie. Tables 2, 3, 4 and 5 give a summary of the results obtained. Each table is divided into two parts. The upper part (under All Ears) shows the number (second row) and per cent (third row) of ears having hearing losses corresponding to the figure at the top of each column. The lower part (under Best Ears)



NAME_____
AGE_____
GRADE_____
DATE_____

DO NOT MAKE ANY NOISE AS IT WILL SPOIL THE TEST

INSTRUCTIONS

YOU WILL HEAR NUMBERS SPOKEN BY A PERSON WHO IS MOVING AWAY FROM YOU. THE VOICE WILL GET WEAKER AND WEAKER. LISTEN CAREFULLY AND WRITE AS MANY NUMBERS AS YOU CAN.

HEARING LOSS	RIGHT EAR 1	2	3	4	LEFT EAR 5	6	7	8	HEARING LOSS
30									30
27									27
24									24
21									21
18									18
15									15
12									12
9									9
6									6
3									3
0									0
−3									−3
	HEARING LOSS_____				HEARING LOSS_____				

HISTORY

DID YOU EVER HAVE AN ACHE OR PAIN IN YOUR EAR?_____ WHICH EAR?_____ WHEN?_____

DID YOU EVER HAVE A RUNNING EAR?_____ WHICH EAR?_____ WHEN?_____

DOES IT RUN NOW?_____

DO YOU EVER HAVE NOISES IN YOUR EAR, LIKE BUZZING, HISSING OR ROARING?_____

WHICH EAR?_____ WHEN?_____

Fig. 5.—Blank form for use by child.

gives similar data on only the best ear of each child. For example, in table 2 the number 590 under 0 in the second column means that 590 ears showed no hearing loss. The figure 31.8 in this column means that 31.8 per cent of the total ears tested showed no hearing loss. The figure 8 in the second row and seventh column of the lower half of table 2 shows that eight pupils had a hearing loss for speech equal to or greater than 15 sensation units in both ears.

It is difficult to say exactly how much loss of hearing indicates any abnormality. A tentative figure of 9 sen-

sation units or greater was used as a basis for determining those who could be classified as being deafened more than could be accounted for by normal variations. In terms of distance for hearing speech, this means that those who cannot hear speech until the speaker comes closer than two fifths of the average maximum hearing distance are considered to have abnormal hearing. It appears to us that if this errs, it is on the conservative side. On this basis, it will be seen that of the 4,112 pupils tested, 595, or 14.4 per cent, will be classed as having deficient hearing, 3.2 per cent having defects in both ears and 11.3 per cent in only one ear.

It should be remarked that public schools number 43 and 52 were tested during the experimental stage of the development work and also under difficult noise conditions, which may account for the larger number of apparent cases of defective hearing in these schools, especially in the group showing losses of only 9 units. As a result of this cause, the percentage figure 14.4 given in the table would be somewhat lower. However, it is felt that if better room conditions were available, a hearing loss of 6 sensation units would be indicative of deafness, so that a figure of 14 per cent is not far from the percentage of pupils having a hearing defect. Since there are 24,000,000 public school children in the United States, there appear to be more than 3,000,000 having definite hearing defects.

As we did not find it practical to make a careful otologic examination of all the deafened children tested, we chose for our purpose those of but one school. This may be taken as a type. In this school, thirty-eight had defects in one ear only and seventeen in both ears. Careful audiograms of all these cases were made, not only to check up on the phonograph tests, but for diag-

TABLE 1.—*Results of a Hearing Test*

Questions Comprising the History:
1. Did you ever have an ache or pain in your ear?
2. Did you ever have a running ear?
3. Does it run now?
4. Do you ever have noises in your ear, like buzzing, hissing or roaring?

Grade 6B

				History				
Name	Age	Right	Left	1	2	3	4	Comment
1. Bernard W....	10	—3	—3	Y	Y	..	Y	Abscess
2. Louis L.....	11	0	—3	..	..	..	..	
3. Bernard V....	12	—3	0	..	..	..	..	
4. Ethel G.....	11	0	—3	..	Y	..	Y	Discharge from ear once, slight
5. Edward F....	11	—3	0	Y	Y	..	..	
6. William P....	11	—3	0	Y	Y	..	..	In hospital; discharge from ear for 3 weeks
7. Arthur B.....	12	0	—3	..	..	..	..	Ear ache, not severe
8. Harold F.....	11	0	0	..	..	..	..	
9. Caroline C...	11	0	0	..	..	..	..	
10. Edwin H.....	10	0	0	1	..	..	..	Ear ache, not severe
11. Carrie S.....	13	0	1.5	..	..	..	..	
12. George M....	11	1.5	0	..	..	..	..	
13. George D....	12	3	0	..	..	..	..	
14. Helen K.....	10	3	0	..	..	..	..	
15. Ella H.....	13	0	3	..	1	..	..	
16. Eleanor M....	10	0	3	..	..	..	Y	
17. Carl L.....	10	0	3	..	..	..	..	
18. Harry C.....	10	3	3	..	..	..	..	
19. David F.....	11	3	4.5	Y	..	..	Y	"Headaches in back of ear"
20. Oscar K.....	10	3	4.5	..	..	..	..	
21. Lamore W...	11	3	6	Y	Y	Y	Y	Ear aches frequently in winter
22. Ronald B.....	10	6	3	..	..	..	..	
23. Rosalind P...	10	3	6	..	..	..	..	
24. Alice W.....	13	3	6	..	Y	Y	..	
25. James P.....	10	6	3	..	..	..	..	
26. Dorothy J....	11	6	3	Y	Y	..	..	Ear ache, not severe; slight discharge
27. Edith J.....	12	6	3	Y	..	..	..	Ear ache, not severe
28. Warren R....	11	6	3	Y	..	..	..	Ear ache, not severe
29. Dorothy M...	10	3	6	Y	Y	..	..	Ear ache, not severe
30. Melon D.....	10	3	6	..	..	..	..	
31. Bernard S....	11	6	3	1	..	..	Y	
32. Muriel M.....	11	9	6	..	..	..	..	
33. Norma B.....	10	9	6	..	..	..	..	Occasional ear aches, occasional running 1 year ago
34. Harold S.....	10	12	3	..	..	..	..	
35. Evelyn D.....	12	15	0	Y	Y	..	Y	Ear ache 1 week ago in right ear; discharge 2 or 3 days
36. Loretta P....	11	15	9	..	..	..	..	
37. Wilbur C.....	10	24	9	Y	..	..	Y	Three or four times could not hear number
38. Dorothy S....	11	24	6	Y	..	..	Y	Ear ache last year in cold weather

Retests

					History			
Test	Name	Age	Right Ear	Left Ear	1	2	3	4
Test 1	Loretta P.....	11	15	9	..	..	..	..
Retest	Loretta P.....	..	3	3	..	..	..	..
Test 1	Evelyn D.....	12	15	0	Y	Y	..	Y
Retest	Evelyn D.....	..	6	0	Y	Y	..	Y
Test 1	Harold S.....	10	12	3	Y	..	..	..
Retest	Harold S.....	..	12	3	Y	..	..	..
Test 1	Dorothy S.....	11	24	6	Y	..	..	Y
Retest	Dorothy S.....	..	24	3	Y	..	..	Y
Test 1	Wilbur C.....	10	24	9	..	..	..	..
Retest	Wilbur C.....	..	15	6	..	..	..	..

TABLE 2.—*Results in Public School No. 52*

Per cent defective, 14.6

All Ears

Hearing loss	—3	0	3	6	9	12	15	18	21	24	27	30+
Number of ears	388	590	401	233	106	60	43	17	9	1	0	4
Per cent	20.9	31.8	21.6	12.5	5.7	3.2	2.3	0.9	0.5	0.05	0	0.2

Number of pupils having hearing loss of 9 or greater in one ear only, 158

Best Ears

Hearing loss	—3	0	3	6	9	12	15	18	21	24	27	30
Number of pupils	309	314	175	57	20	11	8	1	...	...	...	1
Per cent	33.4	37.2	18.9	6.2	2.2	1.2	0.9	0.1	...	...	...	0.1

Number of pupils having hearing loss of 9 or greater in both ears, 41

TABLE 3.—*Results in Public School No. 43*

Per cent defective, 16.5

All Ears

Hearing loss	—3	0	3	6	9	12	15	18	21	24	27	30+
Number of ears	555	1172	954	715	274	28	25	12	3	1	3	4
Per cent	15.6	33.0	25.9	14.5	7.7	0.8	0.7	0.3	0.08	0.03	0.08	0.1

Number of pupils having hearing loss of 9 or greater in one ear only, 234

Best Ears

Hearing loss	—3	0	3	6	9	12	15	18	21	24	27	30+
Number of pupils	440	705	423	144	44	7	4	1	...	...	1	1
Per cent	24.8	39.7	24.0	8.1	2.5	0.4	0.2	0.05	0	0	0.06	0.06

Number of pupils having hearing loss of 9 or greater in both ears, 58

TABLE 4.—*Results in Public School No. 7, Poughkeepsie*

Per cent defective, 9.5

All Ears

Hearing loss	0	3	6	9	12	15	18	21	24	27	30+
Number of ears	350	609	122	29	19	5	1	3	0	1	5
Per cent	29.3	51.0	11.0	2.4	1.6	0.4	0.1	0.3	0	0.1	0.4

Number of pupils having hearing loss of 9 or greater in one ear only, 35

Best Ears

Hearing loss	0	3	6	9	12	15	18	21	24	27	30+
Number of pupils	200	760	84	4	7	2	0	0	0	0	1
Per cent	43.6	45.0	5.6	0.67	1.15	0.33	0	0	0	0	0.16

Number of pupils having hearing loss of 9 or greater in both ears, 14

TABLE 5.—*Results in Public School No. 173*

Per cent defective, 8.5

All Ears

Hearing loss	—3	0	3	6	9	12	15	18	21	24	27	30+
Number of ears	317	518	728	237	33	12	6	7	4	2	2	6
Per cent	19.0	31.0	31.6	14.2	2.0	0.7	0.35	0.4	0.2	0.1	0.1	0.35

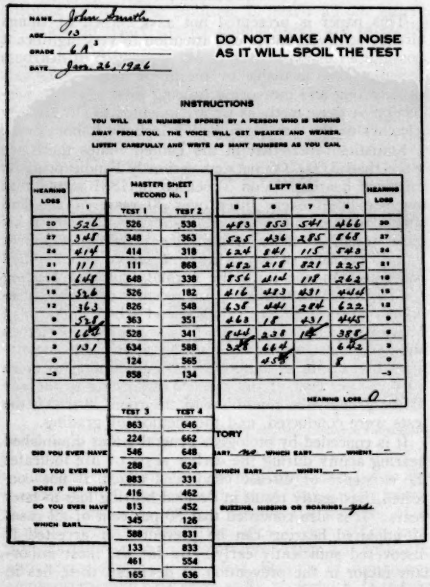
Number of pupils having hearing loss of 9 or greater in one ear only, 38

Best Ears

Hearing loss	—3	0	3	6	9	12	15	18	21	24	27	30+
Number of pupils	284	332	191	42	8	4	2	0	1	0	0	2
Per cent	34.0	33.1	22.8	5.0	0.96	0.48	0.24	0	0.12	0	0	0.24

Number of pupils having hearing loss of 9 or greater in both ears, 17

nostic aid. It is manifest that in most of the nonsuppurative cases with only slight losses in hearing, the audiogram must be the main criterion for making a diagnosis, as the appearance of the drum, its mobility and other diagnostic observations in many cases give no evidence of abnormality. This condition holds


NAME John Smith
AGE 13
GRADE 6A
DATE Jan. 26, 1916

DO NOT MAKE ANY NOISE AS IT WILL SPOIL THE TEST

INSTRUCTIONS

YOU WILL EAR NUMBERS SPOKEN BY A PERSON WHO IS MOVING AWAY FROM YOU. THE VOICE WILL GET WEAKER AND WEAKER. LISTEN CAREFULLY AND WRITE AS MANY NUMBERS AS YOU CAN.

MASTER SHEET RECORD No. 1

HEARING LOSS	RIGHT EAR		LEFT EAR					HEARING LOSS
	1	TEST 1	TEST 2	6	7	8	9	
20	526	526	538	483	853	541	466	20
27	348	348	363	525	436	285	868	27
24	414	414	318	624	681	115	548	24
21	111	111	868	452	218	821	235	21
18	648	648	338	856	414	118	262	18
15	526	526	182	416	483	831	4416	15
12	363	826	548	638	441	284	632	12
9	526	363	351	463	18	631	445	9
6	620	528	341	846	228	14	385	6
3	131	634	588	328	664		642	3
0		124	565		458		8	0
−3		858	134					−3

HEARING LOSS 0

TEST 3	TEST 4
863	646
224	662
546	648
288	624
883	331
416	462
813	452
345	126
588	831
133	833
461	554
165	636

TORY

DID YOU EVER HAVE EAR No WHICH EAR? — WHEN? —

DID YOU EVER HAVE WHICH EAR? — WHEN? —

DOES IT RUN NOW?

DO YOU EVER HAVE BUZZING, HISSING OR ROARING? Yes.

WHICH EAR?

Fig. 6.—Record sheet with master sheet in place for correcting results in first column.

true in spite of the fact that the methods used were far more accurate than those usually employed for detecting deafness in children.

The otologic examination consisted of:

1. A check-up on the child's answers to the questions on the blank form.
2. Examination of nose and throat (rhinitis, tonsils, adenoids, operations, etc.).
3. Inspection of ear drum, especially as to mobility, adhesions, congestion and perforations.
4. Determination of presence or absence of middle-ear negative air pressure.
5. Bone conduction (merely as to its being above or below normal).
6. Use of noise apparatus if indicated.
7. Galton whistle.

For comparison we made audiograms of six normal children. A typical audiogram is shown in figure 7.

With the audiogram and brief history before him, the examiner completed about twenty cases an hour, including two or three that required ten minutes or more to determine the lesion more accurately. It is interesting to observe that only three cases indicated a diminished bone conduction and only four cases a diminished high tone perception with the Galton whistle.

At a future time we intend to discuss these features at length. Suffice it now to say that it is evident in these defective ears, and in many of those at present apparently normal, that there will be a goodly number who in later life will go on to increasing deafness from various causes. Our inability to detect such cases of potential deafness in little children is pitiable, but who can do it? There is no way at present. We believe that by scientific, thorough and repeated examinations much will be learned as to potential deafness and its prevention.

As we have repeatedly pointed out, it is possible to make audiograms by tuning fork tests, but for the examination and recording of hearing capacity of a large number, the time and effort required would be beyond endurance. Results are demanded, and anything which will, like the audiometer, get results in from one third to one fourth of the time required with tuning forks is cheap at any price. Consequently, we are certain that the audiometer or some similar instrument will come into general use for this purpose.

TABLE 6.—*Results of Tests*

Diagnosis	Number of Ears	Operations	Number of Cases
Otitis media catarrhalis chronica	49	Tonsils and adenoids	35
Otitis media suppurativa (acute, chronic, recurrent and healed)	51	Tonsils	4
Mastoid healed	9	Adenoids	1
Nerve deafness	7	Abscess	5
Normal	6	Thyroid	1
	122		
Other Conditions			
Impacted cerumen	10		
Total deafness	3		
Stenosed canal	2		
Foreign bodies	1		

Number of deafened children examined, 61.
Number claiming perfect hearing who were found to be deafened, 40.

Any method we now suggest for handling such an immense undertaking as the detection and treatment of 3,000,000 deafened school children must be tentative, varying with the locality, the number of deafened children, and clinical and school cooperation. In New York, with 1,000,000 public school children, it appears to us that some such outline of procedure as the following will ultimately be advisable:

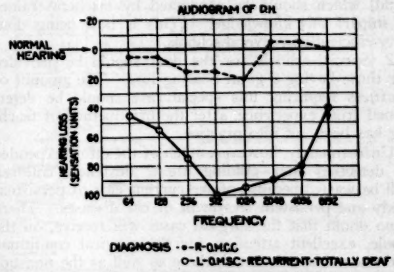


Fig. 7.—A typical audiogram.

Each school should have permanently a quiet room for the examination of the eye, the ear, the nose and the throat. The newer schools are now provided with such a room. Each school should have access to a phonograph audiometer (Western Electric Company, number 4-A) equipped with forty telephone receivers or its equivalent and a tone range audiometer (Western Electric Company, number 2-A) or its equivalent.

PROCEDURE OF TESTING

1. Preliminary testing in classes (groups of forty) in a quiet classroom, with the phonograph audiometer and questionnaire history, as outlined above, by a competent tester and an assistant.

2. Inspection after the regular school hours of the records made that day to determine those to be retested.

3. Retest of the borderline cases (about 18 per cent of the total) on the following day.

4. Tone range audiometer test of those low in hearing capacity, by same tester and assistant.

5. Careful otologic examination and diagnosis by a competent, paid otologist.

6. The recording on a prepared sheet of all the important data from the above tests for each deafened child.

7. A note to teachers through the principal, directing that front seats be given to the deafened children.

8. A note to each parent or guardian stating that the child is slightly, moderately, or markedly deafened in one or both ears, and that he should be sent to a first class ear clinic or a competent otologist to determine what can be done, if anything, to improve the hearing or prevent the progress of the disease. It should be stated that a seat near the front of the classroom will be provided for the child. The latter statement will aid in impressing them with the fact that there is really something the matter.

9. A check-up to see whether the child has been cared for as above, and the sending of a duplicate notice to parents or guardian if it has not been done.

10. Careful filing of the records, so that changes may be noted, and knowledge as to the detection of incipient and progress of promising cases gained.

11. Regular yearly testing of the whole school by the foregoing procedures.

12. The establishment of special clinics, probably as departments of our present hospitals, for studying and for handling difficult cases.

The educational treatment of the deafened children has not been touched on in this paper, but it may be well to mention here our recommendations without going into detail as to how they are to be carried out.

1. Special classes for lip-reading should be provided in each school during school hours for the deafened child, which should be conducted by teachers trained to impart this knowledge. (This is now being done very efficiently in several schools.)

2. Special schools for the deaf should be provided for those having a great hearing loss. The amount of deafness requiring this special care should be determined from experience, after the first method of teaching has been put into practice.

Unfortunately, however, much of the effort expended in detecting and guiding these deafened children will be wasted because of the current lack of persistent study and persistent treatment of ear diseases. There is no doubt that the surgical cases will receive, on the whole, excellent attention for the surgical condition; but when this is arrested, these as well as the nonsuppurative cases will largely drift and founder. Persistence in repeated examinations and care of the deafened children is essential if we are ever to arrest, improve or cure large numbers.

The League for the Hard of Hearing is striving to interest the nation in this vital matter. We believe that many educational authorities are even now seeing its importance, and are getting ready for action; and it behooves all physicians and especially otologists to do their part, and lead, in this hitherto neglected work of the conservation of hearing. It is in the young and only in the young that much can be accomplished.

114 East Fifty-Fourth Street—463 West Street.

DIAGNOSTIC SCHOOL CLINIC IN THE PUBLIC SCHOOLS AS FACTOR IN CONSERVATION OF HEARING*

HORACE NEWHART, M.D.
MINNEAPOLIS

This paper is presented not as a record of things already achieved but to call attention to very significant possibilities of attainment in the prevention of deafness recently made available by means of modern methods of detecting and measuring hearing loss. For the perfection of those methods we are indebted to Dr. Harvey Fletcher of the American Bell Telephone Laboratories.

Statistics reveal that in the United States there are more than 3,000,000 persons seriously handicapped by impaired hearing. Von Troeltsch in 1881 stated that one person of every three over 20 years of age had subnormal hearing in one or both ears. Denker, in his most recent textbook, makes the startling statement that 25 per cent of school children whom he examined had less than one third the normal acuity of hearing for the whispered voice. In a recently conducted preliminary survey of several thousand school children in Minneapolis, the details of which are to be reported in another paper, we have found an appreciable impairment of hearing in various schools amounting to from 30 to 50 per cent of those tested, according to the age of the groups, the conditions of the room in which the tests were conducted, and the method of grading.

It is conceded by otologists generally that diminished hearing acuity during the earlier years of life indicates the existence of disease conditions which, if not corrected, frequently result in decided hearing loss in later years. It is also conceded that 80 per cent of all cases of impaired hearing can be prevented or arrested if discovered sufficiently early. By far the most important factor in the prevention of deafness, then, lies in the early detection and removal of all possible causes that are productive of ear disease leading to hearing loss. Among these causes we must include, in addition to the commonly recognized forms of middle ear disease, tubotympanic inflammation and eighth nerve degeneration resulting from such remote causes as sinus infection, nutritional disturbances, endocrine diseases and congenital syphilis.

Compared with what has been accomplished in other fields of preventive medicine, we have been conspicuously backward in combating deafness. One explanation of this lies in the fact that the ear is extremely difficult to examine, and the detection and measuring of hearing loss by means of our older methods has at best been inaccurate, time consuming and unsatisfactory, and quite impossible of execution in large groups on a reasonably economic basis. Furthermore, a person may suffer the loss of considerable hearing acuity without being himself aware of it. In consequence there has been a deplorable neglect of ear diseases on the part of both the physician and the patient himself.

It is obvious that the most favorable point of attack in meeting the large problem of the prevention of deafness is during the school age. At this period we have more than 21,000,000 of our future citizens during nine

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

months of the year, gathered under strict supervision as to their activities, with conditions most favorable for investigation and help with regard to their individual needs in connection with the safeguarding of their hearing. Because of our modern conception of the function of the public school, which is to prepare the child physically as well as mentally for the serious business of life, these children, in nearly all our larger cities and in many smaller communities, are carefully

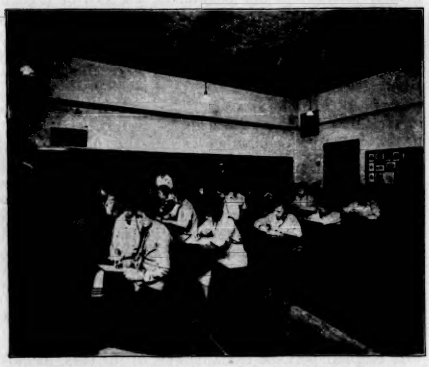


Fig. 1.—Testing school children with the multiple telephone phonograph audiometer at the rate of 100 an hour.

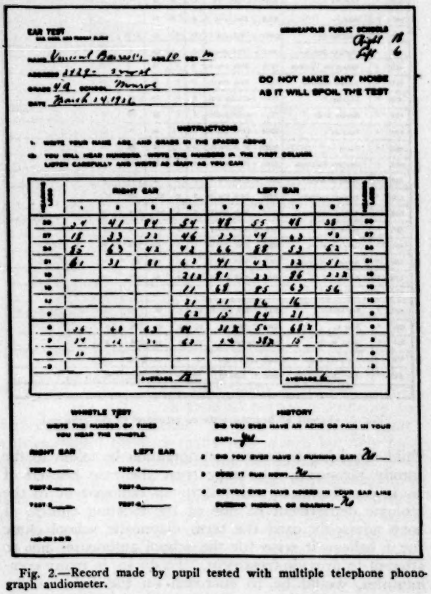
scrutinized by competent medical examiners as to the condition of their eyes, teeth, heart, lungs, skin, nutrition and mentality. They receive the benefits of a careful medical examination once a year. The ears, notwithstanding their importance from an economic and educational point of view, because of limitations suggested above, have been sadly neglected. It is true that cases in which there is gross impairment of hearing are usually detected. The medical examiner and the teacher in testing hearing acuity have in the past been chiefly concerned with the educational needs of the child, to determine whether or not he is sufficiently deafened as to require specialized instruction. Twenty of our states already have laws requiring the annual examination of the ears as well as the eyes of all children of school age. But these severely deafened children fortunately constitute only a very small proportion of our school population. For the vastly more important purpose of preventing deafness, through the detection of early and slight hearing loss, these examinations, as they have been carried out in the past, have been inadequate and practically worthless, because of difficulties already pointed out. This is said with all respect to those who have conducted the tests.

The possibility of making a practical and rapid examination with reasonable clinical accuracy of large groups of persons at low cost by means of the 4-A forty earphone phonograph audiometer of the Western Electric Company marks, in my opinion, the beginning of a new era in otology. With this, or some similar instrument, the school physician or nurse or even the teacher can satisfactorily test the hearing of pupils at the rate of practically 100 an hour, provided the environment is fairly quiet and the work is organized.

During the past year, acting in the capacity of consulting otologist to the Minneapolis public schools, I have gained some experience in supervising the preliminary work of establishing a public school ear clinic in Minneapolis. Conditions have been made most favorable through the keen interest and fine cooperation of Mr. W. F. Webster, superintendent of public schools, and Dr. F. E. Harrington, commissioner of health and head of the department of hygiene of the public schools, and the able help of Dr. C. Alford Fjeldstad. As the result of this opportunity and experience, I am convinced that the diagnostic ear clinic in the public schools offers the greatest possibilities in successfully preventing unnecessary deafness. The details of its organization and procedure must vary with local conditions regarding population and existing facilities, but the general principles must be much the same wherever the work is undertaken.

As yet we have made only a small beginning in Minneapolis, but to illustrate our ideas so far as we have been able to formulate them, I shall briefly outline our plan of procedure.

The fundamental step in any community must be a test of the acuity of hearing of all children enrolled. This should be made on admission and be repeated at least once in two years, and preferably every year.


EAR TEST

MINNEAPOLIS PUBLIC SCHOOLS

DO NOT MAKE ANY NOISE AS IT WILL SPOIL THE TEST

INSTRUCTIONS

	RIGHT EAR				LEFT EAR				
	1	2	3	4	5	6	7	8	
30	39	41	34	54	48	55	41	38	30
27	18	33	23	46	33	49	43	49	27
24	25	63	42	42	44	58	53	52	24
21	61	31	51	63	41	43	33	51	21
18				218	81	33	36	218	18
15				11	68	25	63	56	15
12				21	11	24	14		12
9				63	15	24	21		9
6	25	63	63	21	218	50	68		6
3	14	14	31	60	14	318	15		3
0	11								0
-3									-3
			AVERAGE 78				AVERAGE 6		

WHISTLE TEST

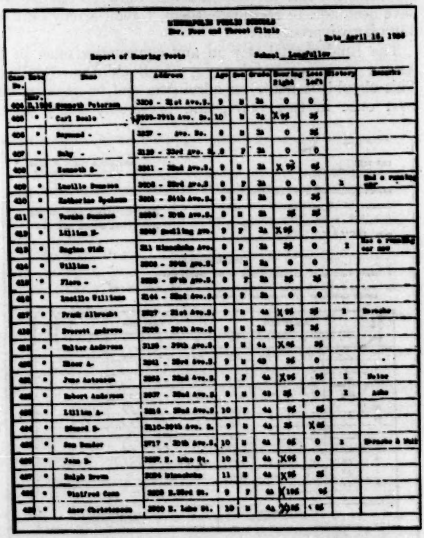
HISTORY

Fig. 2.—Record made by pupil tested with multiple telephone phonograph audiometer.

Many pupils will require tests at shorter intervals, especially after absences from school occasioned by sickness likely to affect the ears. All pupils who can write to dictation are tested in groups of forty by means of the 4-A phonograph audiometer. Those under 8 years of age, the blind, and those severely deafened are tested with the 2-A audiometer. Children found by these tests to have any material hearing loss are reported to the principal of the school. She in turn, or her school nurse, notifies the parents of the condition of the child's

hearing, requesting that the child be examined by the family physician or otologist. When this is not done or is impossible for financial reasons, the nurse, with the parents' consent, takes the child to the school diagnostic ear clinic. This in Minneapolis has been given space in Lymanhurst, a thoroughly modern hospital and clinical building under the management of the general hospital, but receiving as patients only school children. In this building are also housed clinics, wards, and school rooms for the undernourished, the tuberculous, and the eye, skin, heart, orthopedic and child guidance clinics.

In the diagnostic ear clinic a careful ear examination is made of all children whose hearing test falls below a certain predetermined grade. The results of this examination are transmitted by the school nurse to the parents, together with the recommendation that the



MINNEAPOLIS PUBLIC SCHOOLS
Ear, Nose and Throat Clinic

Date April 15, 1926

Report of Hearing Tests — School Lengfellow

Case No.	Date	Name	Address	Age	Sex	Grade	Hearing Right	Hearing Left	History	Remarks
604	4-15-26	Edward Peterson	3826 - 31st Ave. S.	9	B	3A	0	0		
605	"	Carl Beale	3909-39th Ave. So.	10	B	5A	X 95	95		
606	"	Raymond -	3837 - 39th Ave. So.	9	B	3A	0	95		
607	"	Roby -	3130 - 32nd Ave. S.	9	F	3A	0	0		
608	"	Kenneth B.	3201 - 32nd Ave. S.	9	B	3A	X 95	95		
609	"	Lucille Dawson	3808 - 32nd Ave. S	9	F	3A	0	0	X	Had a running ear -
610	"	Katherine Dawson	3201 - 34th Ave. S.	9	F	3A	0	95		
611	"	Vernon Dawson	3808 - 32nd Ave. S.	8	B	2A	95	95		
612	"	Lillian B.	3240 Snelling Ave.	9	F	3A	X 95	0		
613	"	Eugene Vidt	311 Hiawatha Ave.	9	F	3A	95	0	X	Has a running ear now
614	"	William -	3309 - 39th Ave. S.	9	B	3A	0	0		
615	"	Flora -	3309 - 39th Ave. S.	8	F	2A	95	95		
616	"	Imelda Williams	3141 - 32nd Ave. S.	9	F	3A	0	0		
617	"	Frank Albrecht	3827 - 31st Ave. S.	9	B	4A	X 95	95	X	Disorder
618	"	Everett Andrews	3130 - 39th Ave. S.	9	B	3A	95	95		
619	"	Walter Andrews	3130 - 39th Ave. S.	9	B	4A	X 95	95		
620	"	Elmer A.	3241 - 32nd Ave. S.	9	B	4A	95	0		
621	"	Jens Antonsen	3220 - 32nd Ave. S.	9	F	4A	X 95	95	X	Deter
622	"	Robert Anderson	3227 - 32nd Ave. S.	9	B	4A	95	0	X	Adds
623	"	Lillian A.	3241 - 32nd Ave. S.	10	F	4A	95	95		
624	"	Elmord B.	3130-39th Ave. S.	9	B	4A	95	X 95		
625	"	Ben Bunker	3717 - 32th Ave. S.	10	B	4A	95	0	X	Disorder & Hole
626	"	Jens B.	3227 E. Lake St.	10	B	4A	X 95	0		
627	"	Ralph Brown	3224 Hiawatha	11	B	4A	X 95	95		
628	"	Winifred Cook	3229 E.32nd St.	9	F	4A	X 95	95		
629	"	Anne Christensen	3909 E. Lake St.	10	B	4A	X 95	X 95		

Fig. 3.—Report of hearing tests as returned to the principal.

child requiring treatment or operation be taken to the family physician, who may treat the case himself if he is competent, or refer it to an otologist or to the otologic department of one of the existing clinics. I have advisedly used the term diagnostic school clinic for I believe it wise for the school authorities not to attempt to provide treatment. To do so, in many communities, would be to encroach on the field of the private practitioner, or to duplicate the work of existing clinics, a policy that might alienate the interest and cooperation of the medical profession. In many smaller communities it will unquestionably be advisable to provide ear treatments for those not financially able to command the specialized service which their condition demands. This would naturally be the function of the local medical society to provide, just as our medical and dental societies are generously doing in other fields. The great objective, however, is to secure early diagnosis of existing bodily conditions causing hearing loss, and to correct such conditions in the speediest and most effective manner.

The educational value of the work of the diagnostic ear clinic in the schools in stimulating public interest in the prevention of deafness is a feature of great importance. We find a great interest and enthusiasm already awakened among our teachers and parents as they learn of the purpose and methods of this work.

To conserve most effectively the hearing of the greatest number of our population, the idea of regular systematic examinations of the ear must be extended to all educational institutions, the private as well as those supported by the public. Such examinations can be advantageously provided by all large employers of labor. This should be especially true in the operating department of our railroads. The peculiar advantages of these examinations must also soon become apparent to our insurance companies as affecting all applicants for life, health or accident policies. With sufficient cooperation between the medical profession, our educators and all persons interested in human welfare, we may expect a speedy awakening of sentiment which will make it the rule that every citizen will demand a thorough periodic examination of his hearing apparatus, not with the expectation always of having restored hearing loss already sustained, but to preserve his sense of hearing in as nearly perfect a condition as possible.

CONCLUSIONS

1. Regular periodic examinations of the ears, including the use of modern audiometric methods, especially when applied in early life, afford a most important and effective means for the conservation of hearing.

2. Because of the peculiar advantage of applying preventive measures during the school age, particularly in the matter of preventing loss of hearing acuity, it is preeminently a function of our public school authorities to institute and conduct regular periodic examinations of the ears of all school children, such examinations to be adequate to disclose even slight hearing loss.

3. It is in order for the profession to go on record as favoring the provision by our public school authorities of such examinations of the ears of all children of school age. In their home communities, as good citizens, it is the privilege and duty of medical men to do all in their power to assist in the carrying on of the work of conserving the hearing.

910 Donaldson Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FOWLER AND FLETCHER AND DR. NEWHART

DR. AUSTIN A. HAYDEN, Chicago: Much has been said about periodic health examinations by the profession, and there has been great demand for this service by the laity; but up to the present time the otolaryngologist has not raised his hand in this campaign, nor has he been heard from to any extent whatever. With papers of this sort, a step in the right direction, beginning with the school child, is immediately insured. The results will be far reaching. In the first place, the idea will perhaps be sold to the men who treat diseases of the ear, nose and throat. We must equip ourselves with instruments to test the children in our own community, or at least see that they are afforded means of being tested. As a result of that there will be an immense reaction in the conservation of hearing, in retesting of these children, and in the treatment of the diseases that this diagnostic means discloses. For the relief of deafness among adults, the proposition has

an immense appeal to employers of labor; so that I feel sure that the reading of these papers marks an epoch in otolaryngology. We have been far behind ophthalmologists. For years the Snellen test charts have been used in measuring vision, but tuning forks and other means for testing hearing have been so cumbersome as to preclude their general use even for testing patients in the office.

DR. HAROLD M. HAYS, New York: It is certainly a great satisfaction to feel that this section is taking an interest in a matter that should have been seriously considered many years ago. I take great pride in the fact that in 1912 it organized the first work of this kind. In 1921 I read a paper on this subject before the American Medical Association, and at the same time there was held the first annual meeting of the Federation of the Associations for the Hard of Hearing, at which Dr. Wendell C. Phillips read a paper, emphasizing the fact that we must keep hammering at this thing until we actually accomplish something. About four years ago I said to Dr. Phillips that at least 3 per cent of the children in New York had defects of hearing sufficient to keep them from advancing in their school studies. He did not think the percentage was that high, but now, in our survey, we find that more than 5 per cent of the school children throughout the United States are suffering from defective hearing. About four years ago I started a clinic for these children in my office. Since then I and my associates have given 5,000 treatments to more than 500 children with potential or actual deafness. Most of these children had gone to other clinics before, but no improvement had taken place. More than 50 per cent were cured or improved. At the end of the third year I went to the board of directors of the New York League for the Hard of Hearing and said that I would have to give up the clinic. They asked why, and I replied that we need a "Foundation" that would give us a million dollars to carry on this work. It is a very serious problem, and it is a question how long it will be before communities will realize that this is a social and economic condition that must be fought from infancy, because it has been proved that 80 per cent of cases of progressive deafness in the adult could have been cured in childhood. In a report from Chicago some years ago, it was proved that the majority of children were cured by simple means. I hope you will all see to it that a league for the hard of hearing is started in your city, and that we may cooperate and actually do something for these children.

DR. HORACE NEWHART, Minneapolis: There were some discrepancies in our figures, but I wish to explain them by stating that my paper was written with the idea of suggesting a means of preventing deafness, and Dr. Fletcher's with the idea of detecting, educating and treating children already deaf.

DR. HARVEY FLETCHER, New York: It was necessary to omit a large part of the paper in the presentation. The technic of testing hearing with the phonograph audiometer is explained in full, including the reasons for tentatively setting the hard of hearing boundary at 9 sensation units. It appears to us that if this errs, it is on the conservative side. A statistical analysis of the results of tests of more than 4,000 children indicated that 14 per cent have defective hearing on the basis of the 9 sensation units boundary. The figures which Dr. Newhart quoted, indicating a larger percentage with defective hearing, were based, I believe, on a more severe requirement.

Value of Drugs Empirically Used.—Many of the old drugs, introduced at the dictates of fantastic theories, of astrology or of magic, are falling into disuse, and others, of proved value, are being investigated on pharmacologic lines, and their mode of action and the limits of their utility are being determined. But we are bound to admit that among the old drugs, introduced on no scientific grounds, there are not a few which are of great value, and have for centuries contributed greatly to the healing of the peoples. Now that we know better how and when to use them their utility is greater still.—Garrod, Archibald: *Brit. M. J.* **2**:623 (Oct. 9) 1926.

OSSIFYING HEMATOMA *

C. A. STONE, M.D.
ST. LOUIS

There have come to my attention several instances of a pathologic condition usually classified as "Myositis Ossificans Traumatica." Since this is rather uncommon, it is deemed proper to report cases and experiments which may help clarify the subject. After reading much of the fairly extensive literature which is indexed variously as "myositis ossificans traumatica," "myositis ossificans circumscripta," "ossifying hematoma," etc., no satisfactory explanation for the lesion was found. There are a number of very good articles and several careful reviews on the subject.[1] Painter [2] reports a case and discusses thoroughly the various theories. The important references are also given. Noble,[3] still later, published a very carefully prepared article. These are among the more recent ones.

Fig. 1.—Left femur before operation.

It would be a waste of time to consider all the theories of causation. If due to periosteal transplants, as held by many, then, following fractures, this ossifying condition should be quite common. Instances of comminuted compound fractures are rather frequent; yet seldom, if ever, does an ossified hematoma follow. Callus is formed, but as time passes, it decreases in amount. Hence this condition can hardly be callus formation. We know that periosteum bridges gaps and will reproduce bone, but are hardly justified in making it shoulder the blame, else we should find these bony growths quite common, or if from the ossification of an organized blood clot, the instances recorded should be even more frequent. Yet another theory is that there is present in the individual person a tendency to ossification or calcification. Painter [2] believed that war injuries would produce many new cases, but this has not been true at hospitals in the St. Louis district.

Among the many thousands of roentgenograms studied at Washington University Dispensary, Barnes, and the St. Louis Children's Hospitals, the cases here reported are the only ones found. Examination of the anatomic material at Washington University revealed three tumors on the long bones of 500 lower extremities.

* From the Division of Orthopedic Surgery of the Department of Surgery, Washington University School of Medicine and Barnes Hospital.
* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Among these are:
Van Arsdale: Ann. Surg. **18**, 1893.
Binnie: Ann. Surg. **38**: 423, 1903.
Sherrill, J. G.: South. M. J. **2**: 561, 1909.
Finney, J. M. T.: Tr. South. Surg. & Gynec. A. **22**: 85, 1909.
Fay, O. J.: Tr. West. Surg. A., 1913, p. 85.
Coley, W. B.: Ann. Surg. **57**: 305, 1913.
Kidner, F. C.: Calcified Hematoma, J. A. M. A. **68**: 177 (Jan. 20) 1917.
Gessner, H. B.: New Orleans M. & S. J. **77**: 121 (Sept.) 1924.
Makins, G.: Proc. Roy. Soc. Med. **17**: 19, 1923-1924.
2. Painter, C. F.: Boston M. & S. J. **185**: 45 (July 14) 1921.
3. Noble, T. P.: Surg. Gynec. Obst. **39**: 795 (Dec.) 1924.

These three are unquestionably typical ossified hematoma.

It was my idea that these tumors were produced by a blow struck during muscular relaxation, so that the force was delivered almost entirely against the bone. Therefore, a series of experiments was carried out on dogs. With a small iron rod the dogs were struck a sharp blow on the anterior surface of each femur; on one side during the struggles before complete anesthesia, on the other after relaxation was complete. Later trials were all made during deep anesthesia. In no instance was the least semblance of an ossified hematoma produced.

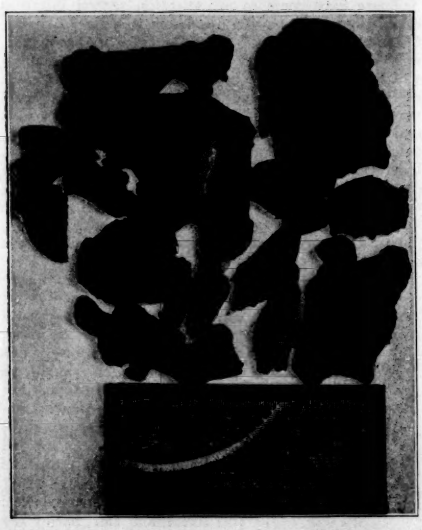


Fig. 2.—Most of the bone that formed the tumor in figure 1. It was removed piecemeal.

Fig. 3 (case 3).—Left femur three months after operation.

Fig. 4 (case 1).—Condition of left femur, four years after operation.

The cases of hematoma here presented all followed a single trauma during athletic competition. In fact, this has been true in nearly all of this type that have been reported.

REPORT OF CASES

CASE 1.—M. K., a man, aged 24, during a football game in November, 1920, was struck on the left thigh at the middle. There was much swelling, with no great amount of pain. A limp was present, and some limitation of flexion. The swelling subsided with the application of heat and massage. In December, a hard lump was noticed on the anterolateral surface of the left thigh. This was regular in contour and not movable. March 4, 1921, an incision over the tumor exposed a fresh hematoma between the muscles and the hard mass. The tumor was removed. There was a thick layer of fibrous tissue, then bone, then fibrous tissue. The edges were attached to the femur; underneath this shell was a cavity, then another layer of fibrous tissue, bone and fibrous tissue. Recovery was complete. In October, 1922, the patient received the same kind of an injury to the right thigh, with swelling, then decrease in size, and later a hard tumor. At operation, April 16, 1923, it was found that the bony mass almost completely circled the middle third of the femur. This mass was removed. In each instance there was a large area of denuded bone. The patient had a good recovery. The pathologic report was: fibrous tissue, a part of the periosteum, and normal bone.

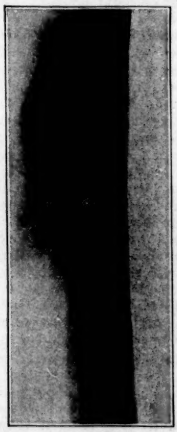


Fig. 5 (case 1).—Right femur, one month after injury; shadow well outlined but not dense.

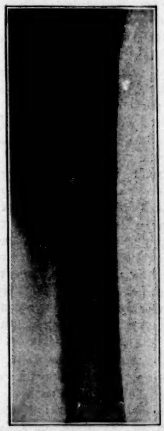


Fig. 6 (case 1).—Right femur just before operation.

CASE 2.—E. D., a white man, aged 20, in June, 1924, while sliding into base, struck his left thigh against the baseman's knee. The disability was greater and more prolonged than in case 1. He entered the hospital, September 25, because the bony mass limited flexion, thus bothering him in his games. Examination showed a mass beginning 2½ inches above the patella. It was sharply outlined below, but merged into the contour of the femur above. The roentgen-ray diagnosis was ossified hematoma. At operation, the mass was found connected to the femur above by a small area. It extended downward in two pieces, much like a partly opened pair of wings. A pocket underneath was filled with a serous fluid. After removal, the measurements were 4 by 20 by 1 cm. for the one

wing, the second being slightly larger. The operation gave complete relief.

CASES 3 AND 4.—These were the same, except that there was a subsidence of the tumor and no operation. The roentgenologic examination was the means of diagnosis.

CASE 5.—A. H., in March, 1925, hurt his left knee in football practice. He continued playing though the knee was stiff. Next day he walked with difficulty. The knee improved during the next three weeks, but he was unable to do track work. Roentgen-ray examination showed an ossified hematoma beneath the patellar tendon above the tibial tuberosity. It looked much like Osgood-Schlatter's disease, and was so considered at first. July 31, a piece of bone half an inch in diameter was removed from beneath the patellar tendon through a small medial incision. It was attached to the tibia by fibrous tissue. The patient left the hospital in four days, and during the fall of 1925 was a star on the football team.

CASE 6.—F. W., a white man, aged 19, was kicked in the left leg above the ankle in October, 1924. The ankle was swollen, but he played through the football season. The patient tried basket ball in the spring of 1925 but had to stop playing because of pain and inability completely to dorsiflex his foot. March 7, through a posterior incision just lateral to the upper part of the Achilles tendon a bony mass which united the tibia and fibula was chiseled off. The series of roentgenograms taken show this mass from the time it was

Fig. 7 (case 1).—Specimen taken from right femur, five months after injury.

faintly visible until it extended across to the fibula as solid bone. He made prompt recovery, and took part in football the following fall.

COMMENT

In each of the foregoing there was a hard blow, and then a hematoma which decreased in size and later ossified. They were all under the periosteum. This would make it appear that following the injury there was bleeding next the bone. The periosteum was pushed up and gradually stretched into various shapes, in which position ossification took place. Each tumor was bone entirely covered by periosteum. Muscle was attached to the outside, but not once was it found inside the mass. This should be ample proof that it is not ossifying myositis.

SUMMARY

Ossification took place within two months after injury, and with one exception operation was not done until the process was complete. There was no recurrence. Good function returned promptly, and has been permanent.

In two instances, operation was not necessary, the condition being improved by heat and massage. Contrary to most of the literature, the diagnosis was not difficult.

The fact that one young man had a tumor in each thigh would lend strength to the idea that there is present an individual tendency to such formation.

Fig. 8 (case 6).—Lateral and anteroposterior views four months after injury; roentgenogram taken one month after injury showed a faint shadow between the two bones.

Fig. 9.—Anatomic specimen from an old man; no history.

Fig. 10.—Tumor on the posterior surface of the femur; specimen from department of anatomy; no history.

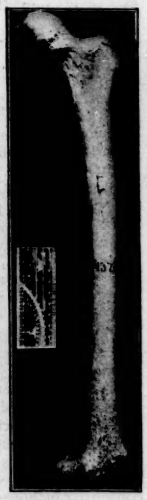


Fig. 11.—Small tumor curling over toward the medial border of the bone; specimen from department of anatomy; no history.

The patients were all young adults. In five instances the tumor occurred on the femur. This was also true with the three anatomic specimens. There was one at the head of the tibia, and one at its lower end.

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ABSTRACT OF DISCUSSION

DR. HENRY W. MEYERDING, Rochester, Minn.: This is a very old condition. In the Scientific Exhibit I saw a specimen of an ossified periosteal hematoma in a wolf, which had occurred 10,000 years ago. I am glad that Dr. Stone showed the early, intermediate and last stages of this condition in the roentgenograms, as there are at times confusing roentgen-ray shadows dependent on the stage of ossification. During the early stages even eminent specialists may have difficulty in determining the true condition from the roentgenograms and the laboratory observations. In differentiating between sarcoma, one of the principal points is the laying down of the bone longitudinally to the shaft. In malignant growths, bone growth forms more frequently as bony spicules at right angles, radiating away from the shaft. In malignant cases, the condition progressively becomes worse, while in ossifying hematoma the condition progressively improves. Why it is that in one case trauma produces an ossifying hematoma, which is a benign tumor, and in another case produces a malignant growth, we do not know. There is usually, however, in these cases, a history of trauma followed by swelling, some pain and ossification, which may be studied by repeated roentgen-ray examinations. It is not always necessary to operate in these cases and sometimes there is recurrence following the removal of the bony tumor. It is unwise to cut directly down onto the tumor and to do a subperiosteal excision, leaving the sac to refill with blood and then ossify. If the periosseous structures following removal can be sutured snugly to the bone and a tight bandage applied, this blood clot may be prevented or the cavity may be drained for from twenty-four to forty-eight hours to prevent a recurrence of the clot, and ossification.

DR. C. A. STONE, St. Louis: In these instances there was no particular trouble in diagnosing the tumors, as they were particularly characteristic. These tumors are removed with periosteum all over them, so that there is no chance of their coming back.

ORTHOPEDIC PROBLEMS IN LEPROSY*

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NEW ORLEANS

In the spring of 1924, Dr. O. E. Denney, the officer in charge of U. S. Marine Hospital No. 66, the National Leprosarium, at Carville, Louisana, conceived the idea that many of the patients could be greatly benefited by orthopedic treatment, and perhaps relieved of their characteristic deformities; if so, one of their most serious problems, after being discharged from the colony, would be solved. I was asked to visit the hospital and to make a survey of the patients from an orthopedic standpoint, so as to advise what could be done to help restore these unfortunates to usefulness. After making an extensive tour of the institution during which about half of the 250 patients were examined, my conclusions were that the majority of the deformities could be prevented, and many could be greatly benefited by the establishment of an orthopedic service, provided a well equipped physiotherapy department was installed. Dr. Denney, in his report, so impressed the bureau with the need of corrective treatment that the position of consulting orthopedic surgeon was created, and became effective, July 1, 1924. I was appointed, and immediately took charge of that department. I began making examinations of patients with the idea of placing them in groups according to the nature and extent of their deformities, for the work, at first, would be largely experimental, as, so far as we knew, no corrective or preventive work of an orthopedic nature had ever been attempted in any lepra colony. The necessary equipment was authorized, and one of the Sisters of Charity nurses was sent away to take an extensive course in physiotherapy.

In the classification of deformities it was found that by far the majority of those affected presented claw hands or fingers; next necrosis of phalanges, metatarsals and metacarpals; then drop wrist, equinus, and hallux rigidus. Of the static deformities, flat or pronated foot is the only one I will mention at this time because of the frequent occurrence of this condition and the associated pain, which requires treatment. It has been interesting to note the marked absence of atrophic and hypertrophic arthritis in a hospital of 250-odd patients; especially when we consider the fact that the pancreas is the only organ in the body not affected by leprosy, it is remarkable that more cases of arthritis are not encountered.

The deformities of the hands were placed in four classes:

1. Beginning atrophy of the interossei and lumbricales.
2. Slight contractions in which motion was still good.
3. Moderate contractions in which motion was limited.
4. Marked contractions in which motion was absent.

Loss of fingers or toes varies greatly, one individual presenting the loss of one phalanx, and another the loss of most of the fingers and toes. Atrophy of the forearm is present in most of the cases, but it seems to be due to disuse rather than to disease. Mutilations following bone necrosis and rarefying osteitis are present, and some patients present the loss of an entire hand or foot.

Fig. 1.—Leprosy, mixed: perforating ulcers communicating with necrotic bone tissue; considerable osseous absorption; function about 10 per cent normal; no physiotherapy attempted at time illustration was made.

Many theories have been presented by various investigators, and few agree as to the cause of muscular and bone changes in lepers; but all are of the opinion that the constant inflammation and infiltration of nerves interfere with nerve function, and this seems to me to be the logical reason. In the hand deformities we first find an atrophy of the interossei and lumbricales, depending on whether the ulnar or medium nerve is affected (disease of the ulnar usually preceding that of the median) with anesthesia in one or more of the fingers; as the atrophy increases, flexion of the finger or fingers begins, extension becomes limited, and sensation is impaired; if the posterior interosseus nerve is also involved we may look for greater contractions with

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

corresponding loss of extension, which in some cases may be extreme; adduction and abduction become impaired, and there is an atrophy of the thenar and hypothenar eminences, with flexion contraction of the thumb in abduction. As the disease progresses the contraction increases, till we find the fingers completely flexed at the middle and distal phalangeal joints. The metacarpophalangeal joints are generally unaffected, though occasionally a patient may present dorsal contractions; motion in these joints is usually free in extension and flexion. In those with marked deformity,

Fig. 2.—Leprosy, anesthetic: fairly typical "claw hand"; function, about 25 per cent normal at beginning of physiotherapy, has improved to about 40 per cent normal.

structural changes take place in the flexors and in the periarticular structures which prevent manual extension.

We do not find nearly as many cases of deformity of the toes and feet as we do of the hands and fingers, possibly because complete flexion and extension of the toes is restricted by the wearing of shoes. Equinus and dangle foot appear, and here we find a paralysis of the dorsal flexors with or without contraction of the Achilles tendon. Bone changes may be looked for in both types of the disease, the nodular or the nerve; these changes may be in size, shape and consistency of bones, and there may be a thickening of the epiphysis with a thinning of the diaphysis. In the nodular type, hypertrophic and inflammatory changes are found, whereas in the nerve type atrophy and absorption may be looked for. Necrosis takes place, and one or more bones may be dstroyed. A rarefying osteitis occurs which may affect all the fingers and toes, and progress to such an extent that complete absorption takes place, and only the finger or toe nails remain on the skin at the ends of the metacarpals or metatarsals. Ankylosis may occur but so far I have only seen one case, and believe it to be rare; in fact, I operated in a case of extreme claw hand endeavoring to produce an ankylosis of the phalangeal joints and failed, and roentgenograms made months later showed no callus whatever. Rarefaction and necrosis are easily demonstrated in roentgenograms of leprous hands and feet, but these pictures are of little diagnostic value without the clinical side being presented, as Raynaud's disease and syringomyelia have a very similar roentgenologic appearance.

When examining patients, I noticed that many of those who had an anesthesia of the fourth and fifth fingers and normal sensation in the others presented a perceptible difference in the temperature of the anesthetic and the normal fingers. I then began taking surface temperatures, and found that in many the temperature of the anesthetic fingers was from two to three degrees lower than that of the normal fingers. I also took temperatures of anesthetic areas in other parts of the body and found the same to be true; that is, that anesthetic areas in leprosy are of lower surface temperature than adjacent normal areas. This fact has been so constant that I believe it to be worth mentioning, and so far as I have been able to ascertain it has not been previously recorded.

The physiotherapy department did not receive the equipment until September, 1924, and we began receiving patients for regular treatment, October 1. In the interim during the summer, nurses and orderlies were trained in the work we were expecting to do, so the department was able to start with a full force of competent assistants. After we were running in full force, the surgical and neurologic services referred cases such as chronic ulcers, chronic inflammations, skin lesions and nerve lesions for treatment, so that many of the cases handled were not of an orthopedic nature, but were cases that might develop deformities later on.

Treatment has consisted of contrast and whirlpool baths, massage, active and passive exercises on pendulum machines of the Zander type, faradic and galvanic current, radiant or deep therapy light, and ultraviolet ray. Diathermy has been used in only a few cases as yet, as it has been difficult to determine dosage for anesthetic areas, and many of the bone cases present anesthesia; however, a few cases of nerve pains have been greatly relieved after treatments with diathermy, and it is possible that it may prove to be a most useful remedy. Operations have been done in a few cases with beneficial results, but as yet these patients are somewhat shy of being operated on.

It is almost impossible to use splints or semipermanent bandages on these patients, as they combat any measures that interfere with their recreation. Hand and foot patients belonging to class 1 are given massage, contrast baths and active exercises; those of class 2 and 3 receive contrast baths, massage, manual correction and active and passive exercises, and those of class 4,

Fig. 3.—Leprosy, anesthetic: at beginning of physiotherapy, patient had about 25 per cent normal function; at time illustrated, about 80 per cent normal function.

deep therapy light, massage, passive extension, splinting and bandaging. Flat or pronated foot patients are instructed to use Thomas heels and are given contrast baths, deep therapy light, massage and exercises. Bone patients with necrosis, are treated with ultraviolet ray, contrast baths and operation; those with rarefying osteitis are treated with ultraviolet ray, massage, contrast baths and exercises. Nerve patients are given deep therapy light, ultraviolet ray, whirlpool baths and diathermy. Many patients attend regularly for treatment, while others attend when it suits their fancy. It is not wise to use corrective measures in cases in which

the disease is in an active stage, and for that reason treatment is often interrupted. Marked improvement has been noted in some, and considerable improvement in many who have been able to take treatment regularly; quite a few patients have been completely relieved of their deformities and discharged from the department. All cases under treatment are examined by me when I make my bimonthly visits to the hospital, but they are under the constant care and observation of the officer in charge, and treatment is regulated accordingly.

Fig. 4.—At left, leprous hands, showing absorption, rarefaction and proliferation; at right, congenital deformity of a nonleprous hand, showing absorption, rarefaction and proliferation.

REPORT OF CASES

Case 1.—L. M., admitted, Sept. 23, 1924, presented moderate contraction of the fourth and fifth fingers of both hands, with inability to extend the fingers. Slight numbness and atrophy were present. The treatment consisted of contrast baths, exercises, active and passive, and massage. November 6, some improvement in voluntary motion was observed, and the contractions were less. December 9, marked improvement was noted; the fingers could be fully extended; the atrophy was disappearing, and no numbness was present. Jan. 1, 1925, the patient stopped treatment of his own accord. May 14, he had an attack of ulnar nerve pain, and the fingers began to contract again. After taking treatment for three weeks, improvement was marked and he again stopped. This patient responds quickly to treatment, but stops before permanent results are possible.

Case 2.—G. P. complained of ulnar nerve pain. An anesthetic area on the forearm registered a surface temperature of 88.8, while 3 inches from the edge of the area where sensation was normal, the temperature was 91. Treatment for nerve pains consisted of deep therapy light and ultraviolet ray; after three treatments the patient got a heavy sunburn, after which he was completely relieved of his pain, and the discolored lesion disappeared.

Case 3.—A. O., admitted, Feb. 24, 1925, presented moderate contraction and anesthesia of the fourth and fifth fingers, with atrophy of the interossei; the surface temperature of the fifth finger was 88; of the fourth finger, 90.4; of the third and second fingers, 92. The patient was given a treatment of contrast baths, massage, active and passive exercises and radiant light daily. June 2, the fingers were straight and normal in sensation and motion; only a very slight atrophy was present. November 12, the hand was normal, and the patient was discharged from the department.

Case 4.—T. L., admitted, Oct. 16, 1924, with the fingers of both hands tightly contracted, complete glove anesthesia, and the right foot in extreme equinus with slight varus, declined to have an operation on the foot. Treatment was limited to the hands, and consisted of contrast baths, radiant light, massage, and manual stretchings. The patient reported for treatment at intervals. July 29, 1925, the hands were slightly improved, the contractions not so tense, and the motions slight. March 16, 1926, considerable improvement in the fingers, and slight sensation in the second finger of the right hand were noted; the patient can now grasp certain objects, and motion has improved in extension.

Case 5.—H. B., admitted, April 14, 1925, with general numbness of both hands and lowered surface temperature, had moderately contracted fingers, and there was atrophy of the interossei and lumbricales. Treatment consisted of contrast baths, massage, radiant light, and active and passive exercises. July 29, marked improvement in mobility was observed, the fingers were almost straight, and numbness was reduced to the tips of the fingers. March 16, 1926, the hands were normal in motion and appearance, but there was still some numbness in the ends of the fingers.

Case 6.—Mrs. B., admitted with an ulcer on the foot, was given thirty treatments with radiant light and ultraviolet ray. The ulcer was completely healed.

Case 7.—A. B. presented necrosis of the mediotarsals, with discharging sinuses. Treatment consisted of deep therapy light and ultraviolet ray. After three months' treatment, the sinuses were smaller and the discharge less. Roentgen-ray examination showed the necrosis to be diminishing. This patient then became very active and had to discontinue treatments because of his general condition.

Cases 8 and 9.—Mrs. S and H. B. each had ulnar nerve pains and lesions. The treatment consisted of deep therapy light and ultraviolet ray. Pains were completely relieved.

COMMENT

Many of these patients develop painful pronated feet, probably because of lowered resistance, and these have been immediately relieved by using Thomas heels with $\frac{3}{16}$ inch raise, massage, contrast baths and exercises.

Fig. 5.—Leprous hands and feet, showing rarefaction, absorption, proliferation and necrosis.

Quite a number of patients have lost limbs by amputation; these have been supplied with artificial limbs.

During the first month after the physiotherapy department was equipped, 855 treatments were given; the largest number given in any month was in June, 1925, when 4,764 were given, and the total from Oct. 1, 1924, to Jan. 1, 1926, was 41,216. During this time approximately 125 cases were treated.

CONCLUSIONS

1. Prophylactic treatment will result in the prevention of many of the deformities caused by leprosy.

2. Many deformities can be greatly improved, and possibly cured.

3. Massage, contrast baths and exercises give the best results in moderate contractions.

4. Ultraviolet ray and deep therapy light irradiation give excellent results in nerve pains, indurated areas, old ulcers and bone necrosis.

5. Diathermy is of value, but it must be used with caution when anesthesia is present.

6. Anesthetic areas are of lower surface temperature than adjacent areas where sensation is normal.

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ABSTRACT OF DISCUSSION

DR. O. E. DENNEY, Carville, La.: It has been the opinion of most men who have familiarized themselves with leprosy that the deformities of the progressive forms could not be cured. Dr. McIlhenny has shown clearly and conclusively that many deformities can be prevented and others corrected even when the deformity has become advanced. In the past, when a leper was fortunate enough to be discharged from a leper colony, he carried stigmas, such as claw hands, which marked him in a leper community. If Dr. McIlhenny can correct these deformities he will have done something which I think is unique in leprosy and something of decided value to the suffering patient.

DR. RALPH HOPKINS, New Orleans: The diagnosis of these cases is of extreme importance and is often a very difficult problem, not only clinically but also from a bacteriologic point of view. The anesthetic areas, to which Dr. McIlhenny has referred, are one of the most important points in making the diagnosis. The loss of sensation in these areas is one of the clinching points in the diagnosis. I thought it was of especial interest that Dr. McIlhenny was able to point to us that these anesthetic areas are not only insensible to pain and temperature changes, but also present the very unusual phenomenon of a lower temperature than the adjacent normal skin. I believe that in dermatology the skin thermometer has been used little, if at all, and, if other skin lesions do not show the same variation in temperature that has been shown in these leprous anesthetic areas, it will be an important aid in the diagnosis of leprosy. The impairment of function we may suppose to be due to interference with nerve supply; that is, the atrophy is the result of nerve destruction or of interference with nerve function through pressure on the nerve or through toxins in the nerve tissue. If Dr. McIlhenny will be able to prevent the atrophy of disuse it will go very far toward making the life of the leper, after the disease has been arrested, a more useful one. Bearing in mind that in these arrested cases the patient may live on for thirty or forty years, it means, I should say, a great deal to them to have their deformities limited to the greatest possible extent.

General Practitioner Is All-Round Specialist.—A general practitioner has to possess a knowledge of every branch of medicine, in fact to be in miniature an all-round specialist with the proviso that he also knows his limitations—what he can safely do and what he should leave to others; for in these days, with great and ever-increasing complexity of medicine, a real all-round specialist is, of course, impossible. This difficulty has to some extent been met by team-work; firms of general practitioners so constitute themselves as to cover the ground of the various branches of medicine, surgery and gynecology more or less completely, each partner devoting himself to some particular line of work.—Rolleston, Humphry: *Lancet* **2**:738 (Oct. 9) 1926.

INTRA-OCULAR SARCOMA IN CHILDREN

A CLINICAL AND PATHOLOGIC STUDY OF TEN CASES *

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A report of ten cases of intra-ocular sarcoma in children is made from the records of the ophthalmic clinic of the University of Michigan. The pathologic material was examined in the department of pathology under the direction of Dr. A. S. Warthin, to whom we are indebted for the final diagnosis made in each of the cases submitted.

In the ten cases, fourteen eyes were affected clinically and eleven were made available for pathologic study. In four cases (6, 7, 8 and 9), both eyes were involved. In case 9, the second eye was enucleated after death and the pathologic findings are included in this report. In eight cases the history showed no evidence of an hereditary tendency. In two cases (8 and 9) the history was unknown, although the patients were sisters, each having both eyes affected. In six cases the orbit was subjected to roentgen-ray therapy after exenteration had been performed. In three cases recurrence and death occurred, in two cases there was no recurrence, and in one case the result is unknown. In two cases the remaining eye was treated with radium, in one of which the process was not arrested. In the other case, which is still under observation, there has been some increase in the size of the neoplasm, but the rapidity of the growth seems to have been checked. Four cases with six eyes or orbits affected were under observation at one time (fig. 1).

Four patients with six eyes or orbits affected with sarcoma.

* Read before the Section on Ophthalmology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

A clinical diagnosis of glioma was made in all except one case. Case 6 was treated for tuberculous uveitis. The patient was kept under observation for six weeks, during which time the nodules disappeared from the iris. Ophthalmoscopic examination revealed a crescent shaped mass in the vitreous, but the presence of an intra-ocular tumor could not be demonstrated. The patient passed from observation and was not heard from until the eye and orbital tissues were sent in for examination six months later by Dr. C. W. Williams of Alpena, Mich. After examination of pathologic material, all the cases proved to be round-cell sarcoma.

A great deal of confusion and uncertainty exists concerning the classification and terminology of intra-ocular neoplasms in children. Certainly, we know nothing of their etiology. Classifications have been attempted based on location and mode of growth. The researches of von Graefe, Hirschberg, Knapp and Wintersteiner prove the possible retinal origin of these so-called gliomas. The retina contains mesoblastic tissue as early as the fifth week of embryonic development, before the time of differentiation of the various retinal structures. There is, therefore, no improbability of the occurrence in the retina of growths of mesoblastic origin. The fact that sarcomas occur and have been shown to originate in the choroid has been considered a coincidence by those who believe in the gliomatous nature of all intra-ocular neoplasms in children. As these malignant growths may be either retinal or choroidal in origin, are nonpigmented, and in a number of cases show rosette formation, there has been much speculation as to their true nature. The growth characteristics of these neoplasms, whether retinal or choroidal, are the same. They are all highly malignant, and the only point of difference seems to be the seat of origin.

Neoplasms arising in the young are nonpigmented. They originate from young cells, perhaps from undifferentiated cells that undergo rapid proliferation. Not one of these young and abnormally proliferating elements reproduces its respective type accurately. The tendency is to simulate embryonic cells. Fuchs [1] found that nonpigmented malignant tumors belong to the younger age limit. A few spindle-cell sarcomas have been reported. The majority, however, are round-cell, and this type is common in the whole nonpigmented group of neoplasms.[2] Of the thirty cases of leukosarcoma reported by Fuchs, occurring at all ages of life, three originated in the iris, two in the ciliary body and twenty-five in the choroid. All, therefore, had their origin in the pigmented matrix.

Wintersteiner,[3] in his painstaking researches, found rosettes in many of the neoplasms and looked on them as the key to the mystery. Rosettes, according to Parsons,[4] are aggregates of rod and cone fibers. The basal membrane represents the membrana limitans externa, the protoplasmic protusions into the lumen are rods and cones, and the nuclei are the outer granules. Rosettes have been found in microphthalmic and congenitally deformed eyes; also in pseudogliomatous and atrophic eyes.[5] Parsons [4] says, "If it be granted that rosettes are derived from neural epithelium and are not merely islands of neural epithelium which have been caught and surrounded in the growth, and thereby modified, there yet remains the explanation of the majority of cases in which they are absent." There are difficulties in accepting Wintersteiner's theory. Ginsberg [6] considered that the elements of the rosettes are not neural epithelium but embryonic cells that have not yet been differentiated into spongioblast and neuroblast.

Mavas [7] recently reported the results of careful histologic examinations of ten gliomas. In the proliferating parts of some of these neoplasms, the cells formed tubules around the vessels resembling angiosarcoma. Some of the cells were cylindric and showed a tendency to form rosettes. Between the cells there was a line of demarcation resembling the external limiting membrane broken through in places by processes of the cylindric cells suggesting the arrangement of embryonic visual cells. Mavas, therefore, believes that epithelial structures are characteristic of retinal neoplasms, going further than Wintersteiner, who found rosettes in only eleven of thirty-two cases. Jackson [8] gives a history of the various terms used and concludes that the term retinocytoma is probably the correct one since the growth originates in the outer layer of the retina and, therefore, cannot be called neuro-epithelioma, as Flexner and Wintersteiner believed. Fisher [9] adopts the term neuroblastoma.

The differentiation between a retinal and a choroidal malignant tumor occurring in children is difficult, and our knowledge regarding the pathology of these neoplasms is still insufficient to justify positive conclusions. The majority of writers agree that a proliferation of glial tissue cannot have the high degree of malignancy observed in intra-ocular neoplasms, and that a glioma of the retina has nothing in common with a glioma of the central nervous system. Glioma of the retina is reported only in the young, while glioma of the brain and spinal cord occurs at all ages. Treacher Collins,[10] in 1896, compared the resemblance of glioma cells to those of the undifferentiated retina in the fetus, and suggested that the neoplasm represents an embryonic condition of the tissue from which it originates. It is difficult to see why glioma should appear only in the young.

Choroidal malignant growths are found not only in adults but occasionally in children as well. Such neoplasms of the choroid, occurring in early years of life, have been reported by excellent observers, although they all agree that their occurrence is extremely rare. According to Fuchs,[11] a malignant neoplasm developing in the eyeball will have to be regarded in all probability as a glioma in a child and as a sarcoma in an adult.

The records of ten cases of intra-ocular sarcoma occurring in children between the ages of 18 months and 5 years are herewith added to the twenty-one found in the literature.

The tissue for microscopic examination was prepared in a uniform manner. One half of the globe was fixed in a neutral solution of formaldehyde and sent to the department of pathology. The other half of the globe was prepared by one of us (W. H. S.). Paraffin blocks were made and sections stained with hematoxylin and eosin, Weigert's stain, van Gieson's stain and toluidin blue. Formaldehyde fixed preparations were also placed

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2. Fuchs, Parsons and others.
3. Wintersteiner: Das Neuroepitheliom retinae, Leipzig and Vienna, 1897.
4. Parsons, Herbert: Pathology of the Eye **2**: 632.
5. Becker, B. Salzmann, Bernheimer, Rubinski, Helfreich, Dotch Hippel and others.
6. Ginsberg: Arch. f. Ophth. **48**: 1, 1899; Ztschr. f. Augenh., 1901.
7. Mavas, J.: Retinocytoma, Tr. Soc. d'ophth. de Paris, 1922; Ann d'occul. **159**: 907, 1922.
8. Jackson, Edward: Retinocytoma or Glioma, Am. J. Ophth. **6**: 514-515, 1923.
9. Fisher, B.: Ocular Gliomas (Neuroblastomas), Centralbl. f. allg. path. anat. **29**: 545.
10. Collins, Treacher: Researches, 1896.
11. Fuchs: Textbook of Ophthalmology, ed. 7, p. 726.

in a solution made up of copper acetate, chrome alum and acetic acid, transferred into aqueous solution of phosphomolybdic acid according to Alzeimer's method, and stained with Mann's solution. Part of the globe was fixed in alcohol-ammonia for silver impregnation methods. Some of the sections after fixation in formaldehyde and ammonium bromide were studied according to Cajal's gold chloride methods.

With these special staining reactions we were not able to demonstrate that the cellular elements forming the neoplasms were ganglion cells or glial cells. The cells did not show any branching or ramified protoplasmic processes. Scaffidi and others were not successful in this regard with Weigert's and Mallory's stains. Borst found some short and rudimentary fibers in the cylindric cells forming the rosettes. Graef also used Golgi Cajal's silver impregnation methods and found some cells with scanty fibrils. Scaffidi, however, believes that these cells are persistent remnants of normal retina and seems to agree with Parsons in regard to rosette formations.

In the ten cases here reported, the perivascular arrangement of the tumor cells was the most prominent feature. Rosette formations were found in only two cases. They were due entirely to proliferation of cells arising from small blood vessels, and represent the early peritheliomatous proliferation of the walls of newly formed blood vessels. No rosette formation was made out in any of the tumor masses outside the globe, but the essential perivascular and also the alveolar arrangements were maintained in all the growths, even in the metastatic tissue. In the ocular tissues, alveolations were present in portions of the growth and absent in others.[12] The arrangement seems to be due to the environment. In some cases the cells were arranged very regularly in layers around thin walled vessels, so that a tubular structure was seen, forming the angiosarcomatous group. In sections, this arrangement showed a superficial resemblance to rosettes.[13] On the growing edges of these infiltrating tumors, the cells were commonly gathered about the small blood vessels, showing every gradation in size. Large round cells were found in tumors of the small cell variety. Some of the larger cells were epithelioid, with oval, faintly staining nuclei, and, when closely packed, were often polygonal in appearance. The cells were disposed in reticular stroma. Virchow regarded these cells as products of neuroglia; hence the term originally used. This opinion was first opposed by Delafield, who called these growths round-cell sarcoma.

The stroma is derived from a preexisting tissue, from old and new blood vessels and from the intercellular substance derived from the tumor cells. In some of the very cellular portions of the growth, where proliferation was very active, an attempt to demonstrate the stroma was usually not successful. The blood vessels seemed to form the most important part of the stroma, and in many places the adventitia was lost in the stroma of the neoplasm. In areas the cells exhibited angioblastic properties.

All the neoplasms reported showed great proliferative activity similar to that frequently seen in mesoblastic cells released from the restraints of normal growth. This capacity may be estimated as being even greater than that observed in most epithelial tumors. The cellular elements of these choroidal and retinal growths certainly are very much alike in morphology. The behavior of the neoplasms indicates a mesoblastic origin. Where the blood supply fails, growth ceases and necrosis promptly follows.

We are in ignorance when we consider the etiology of these neoplasms. There are instances in which sarcomas are thought to arise from embryonal cell groups, but it must be admitted that the existence of such cell groups as the source of many sarcomas has not been proved.

12. Schick: Arch. f. Ophth. **14**, 1898; **68**: 2, 1899.
13. Kerschbaumer: Sarcom des Auges, 1900.

SUMMARY

1. An analysis of the pathologic findings in the ten cases of intra-ocular tumors reported seems to warrant the conclusion that the growths were all sarcomatous.

2. Neoplasms of this nature are nonpigmented, rapid in growth and highly malignant, and have marked properties of angioblastic proliferation.

3. The apparent rosette structure, seen in two of the cases, represents the early peritheliomatous proliferation. It is due entirely to the proliferation of the cells arising from small blood vessels and is not characteristic of epiblastic tumors. In the older portions of the neoplasms this structural arrangement is absent.

4. Further study will be necessary to prove definitely the suggested possibility that a glioma or a neuroepithelioma of the retina as a clinical entity in children does not exist.

PATHOLOGIC REPORTS

An outline of the history of each case follows.

CASE 1.—L. C., a boy, aged 5; intra-ocular tumor of left eye; enucleation followed by recurrence in orbit; exenteration; death.

Final diagnosis after the necropsy was: primary, alveolar large, round-cell sarcoma with multiple metastases in the meninges, liver and dura mater; thymicolymphatic constitution; congestion of all organs.

CASE 2.—G. C., a boy, aged 3. Intra-ocular tumor of left eye; perforation; exenteration; death.

The normal relationship of the ocular contents was destroyed; the choroid, retina and ciliary body were densely infiltrated with large and small cells.

The eyeball was cut through the anteroposterior pole. The entire contents of the globe were replaced by a tumor mass, which had a grayish white appearance. This tissue was firm and infiltrated all the posterior structures of the eye and perforated the globe near the optic nerve region. The lens was cataractous. There was some hemorrhage in the anterior portion of the vitreous.

Microscopic examination of the tissue disclosed that the normal relationship of the ocular contents was destroyed; the choroid, retina, vitreous and ciliary body were densely infiltrated with large and small round cells. These cells were grouped around blood vessels and capillaries, and there was active proliferation of cells around this central blood supply. Toward the periphery the cells were shrunken, stained quite deeply, and there was much fragmentation of cell structure. Much necrosis was evident. There was some lime-salt deposition. The actively proliferating cells had considerable cytoplasm showing centrosomes. The architecture of this tumor resembled angiosarcoma. Alveolations were seen in the greater portion of the tumor. The supporting structure of this neoplasm was made up of connective tissue arising from blood vessels. The stroma took the connective tissue stains of Weigert's and van Gieson's methods. No rosette formation was made out, and no elements of a neuro-epitheliomatous nature were found. The tumor seemed to arise from the choroid. The tumor cells were not pigmented. In the necrotic areas, some pigment was found which was of hematogenous origin. This neoplasm was infiltrating the retina and ciliary body and was perforating the globe posteriorly. The optic nerve showed extensive involvement.

There was no pigment in the extra-ocular portion of the tumor. The cell structure and architecture was similar to the one found in the eyeball.

The diagnosis was: large round-cell alveolar sarcoma.

CASE 3.—L. H., a girl, aged 3. Intra-ocular tumor of left eye; perforation; exenteration.

The globe was cut in anteroposterior section. The entire posterior half of the eyeball was replaced by a grayish, firm mass, which involved the inner coats of the eye, extending into the vitreous chamber and forward in the choroid, involving the retina and ciliary body. The lens was opaque and cataractous. The vitreous was pushed forward and formed a semitranslucent, gelatinous mass behind the lens. The new growth had perforated the sclera near the optic nerve region.

The tissue was fixed in formaldehyde, embedded in paraffin, and stained with hematoxylin and eosin. Special preparations were made for staining methods with Weigert's and van Gieson's, toluidin blue and Alzeimer stains.

Sections showed that the entire choroid and retina were involved in the tumor formation. Practically no normal structures of these coats were made out. The growth was extremely vascular, and many newly forming blood vessels were seen. The cellular elements seemed most dense around these newly forming vessels and capillaries. This arrangement gave the growth a pseudo-rosette appearance. However, every one of these alveolations had a central blood supply. Mitosis and proliferation were most active near the central vessels. Connective tissue septums arose from this capillary network. The entire structure was very cellular, and little connective tissue framework was noted. Sections stained with Weigert's stain were particularly clear cut in this respect. The cellular elements were chiefly large and small round cells. There were no spindle cells. The larger round cells were located in the neighborhood of the central blood supply. Some of them were epithelioid in character and contained several nuclei. The smaller round cells were more peripherally located, had very little cytoplasm, and appeared shrunken. There was much necrosis in the periphery, with lime-salt deposition. The individual cell structure was entirely disorganized. The tumor mass originated apparently in the choroid, and was not pigmented. The entire choroid was involved. The invasion into the retina was extensive; no normal retina tissue was made out. The tumor also invaded the ciliary body. By direct extension there was invasion of the sclera and perforation of the globe posteriorly. The growth extended over the optic papilla but did not infiltrate it. There was no infiltration of the interior of the optic nerve; extension took place into the optic nerve sheaths. The tumor masses in the orbit had the same architecture.

The diagnosis was: alveolar round-cell angiosarcoma invading the choroid, retina and ciliary body and infiltrating the orbit.

CASE 4.—J. S., a girl, aged 3. Intra-ocular tumor of left eye; perforation; exenteration.

Microscopic examination of the stained sections showed that the main mass of the tumor was made up of an alveolar structure, resembling islands. The center of these islands showed blood vessels and capillaries, giving origin to a reticulated connective tissue framework. Around these blood vessels, embedded in this connective tissue framework, arranged in islands, were masses of round cells closely packed together. They were larger in the central portion of the alveoli, and showed active proliferation. Many contained several nuclei and were epithelioid. Toward the periphery, the cells were smaller, contained very little cytoplasm, and were deeply stained. They appeared shrunken, were undergoing fragmentation, and were necrotic. Necrotic tissue was abundant in the periphery of the lobule, and it appeared that each island was surrounded by necrotic cell structures. The greatest part of the tumor showed no pigment, but in the more solid parts of the tumor, particularly in the choroid, and in the ciliary body, migration of pigment cells was noted, so that in part it had a melanotic appearance. The tumor perforated the globe by direct extension through the sclera and infiltrated the optic nerve and contents of the orbit. The architecture of the tumor in the orbital tissue was essentially the same as that in the globe. However, no pigment was found in the orbital portions of the neoplasm.

The special staining reactions, Alzeimer methods and silver impregnations showed no evidence of any neuro-epitheliomatous nature of the growth.

The diagnosis was: alveolar round-cell angiosarcoma, a very malgnant neoplasm.

CASE 5.—L. H., a girl, aged 3; intra-ocular tumor of right eye. Orbit exenterated after death. Perforation.

The globe was cut through the anteroposterior pole. The entire globe was filled with a yellowish white mass, firm in structure, infiltrating all portions of the eyeball, firmly attached to the posterior portion of the globe. The tumor mass perforated the globe in the optic nerve region.

Microscopic sections, stained with hematoxylin and eosin, Weigert's and van Gieson's stains and toluidin blue, showed the entire structure of the new growth extremely vascular. The entire tumor mass was made up of newly formed blood vessels and capillaries. Around this connective tissue stroma the tumor was cellular, consisting of large and small round cells. The architecture was alveolar, proliferating elements being grouped around blood vessels and capillaries. In the periphery of the alveoli there was much necrosis, with calcification. The new growth invaded all structures of the eye, even the cornea. Perforation of the globe had taken place posteriorly; the optic nerve was markedly infiltrated. The orbital structures showed the same tumor architecture. This was not a pigmented tumor, although pigment migration and transportation were noted in the choroid, ciliary body and iris. The tissues of metastasis showed no pigment.

Special staining reactions for neuroglia, Alzeimer and silver impregnation methods of Cajal, were negative and showed no evidence that the tumor was of neuro-epitheliomatous nature.

The diagnosis was: round-cell alveolar sarcoma, angiosarcoma, infiltrating all the tissues of the eyeball and perforating the globe.

CASE 6.—E. E., a boy, aged 21 months. Intra-ocular tumor of right eye; enucleation; recurrence; exenteration; death.

Section of the eye was made through the anteroposterior pole. The contents of the globe consisted of a soft, whitish, gelatinous mass, occupying the posterior portion of the vitreous chamber. On gross inspection the tumor adhered closely to the retina and seemed to infiltrate it. In areas the retina was detached. The choroid was involved posteriorly. There was no macroscopic evidence that the new growth invaded the outer coats of the eye.

On microscopic examination of tissue (hematoxylin, eosin, Weigert's, van Gieson's and toluidin blue stains) the growth was very vascular and very cellular. The greater portion of the retina was free from invasion; the main mass of the tumor was growing into the vitreous. In portions, the retina was detached. Where the new growth invaded the retina there was a decided rosette structure, giving the tumor the appearance of being neuro-epitheliomatous in character. Rosettes were also seen in portions invading the vitreous. Proliferation and survival of cells was marked around the capillaries and blood vessels, which gave rise to a reticulated connective tissue stroma. These round cells showed mitotic figures in the more actively proliferating portions where the cells were closely packed. The cells in the more dense portions of the tumor assumed various shapes, some oval, some polygonal. They had one or several nuclei; the cytoplasm in the smaller cells was deeply stained, a large nucleus occupying almost the entire cell. In the peripheral portions of these lobules and away from the blood supply there was much necrosis.

This rosette formation was lost in the choroidal extension, where the cells were closely packed. Special staining methods for neuroglia (Alzeimer methods and Cajal modifications) showed no evidence that these round cells had any ramified protoplasmic processes. Silver impregnations after alcohol and ammonia fixation did not show a neuro-epitheliomatous origin.

Posteriorly, the optic nerve sheaths were infiltrated by tumor cells. Perforation of the globe had taken place along the course of the ciliary vessels. The optic nerve itself showed infiltration.

The diagnosis made on the intra-ocular tissue by the department of pathology, Sept. 30, 1924, was: neoplasm of a neuro-epitheliomatous type showing rosette structure.

The second report, Feb. 4, 1925, following exenteration was: large mass of neoplasm very vascular, very quickly growing,

alveolar in structure, for the greater part resembling a round-cell angiosarcoma but without rosette formation.

The diagnosis of neuro-epithelioma, Sept. 30, 1924, was made entirely on the apparent rosette structure shown in a piece of this neoplasm. However, the alveolar, apparently rosette formation was due entirely to proliferation of cells arising from small blood vessels, a young round-cell angiosarcoma. In the older portions this rosette structure was absent and the picture was wholly that of a round-cell angiosarcoma. These rosettes represented the early peritheliomatous proliferation of walls of new blood vessels.

The final diagnosis from the postmortem report, June 5, 1925, was: recurrent round-cell angiosarcoma primary in the right eye; massive local growth in right orbit with extension to skull bones, cranial cavity, right nasopharynx and right cervical lymph nodes; pressure deformity of mouth and nose; erosion-atrophy of right zygoma and adjacent bone surface; multiple erosions of cranial bones; transposition of inferior vena cava and aorta; undescended testes.

CASE 7.—V. W., a boy, aged 2. Intra-ocular tumor of both eyes, more advanced in left. Enucleation of left eye; radium treatment of right eye.

The globe was sectioned through the anteroposterior pole. A whitish-gray growth occupied the vitreous chamber. It was gelatinous in consistency, the most posterior portion being quite firm. In places the retina was detached and the neoplasm had invaded the retina. The greatest portion of the tumor had invaded the vitreous. Posteriorly, the choroid was involved in the tumor formation. No perforation of the globe was discovered on gross inspection.

Microscopic examination of the tissue after hematoxylin and eosin, Weigert's and van Gieson's and toluidin blue stains showed a very vascular tumor formation. The greatest portion of this mass was made up of blood vessels and capillaries, surrounded by rapidly proliferating round cells. These cells were closely grouped and there was survival of cells around a central blood supply. Toward the central portion of the cell nests, round cells were quite lightly stained, and cytoplasm was abundant. In the more peripheral portions the cells were not so large, stained very deeply, and had large nuclei and very little cytoplasm. Some appeared shrunken. Fragmentation of cells took place and in the periphery of these lobules there was much necrosis, with lime-salt deposits. This arrangement gave the neoplasm a striking appearance, showing islands with actively proliferating cells and survival of cells around a central blood supply. These were surrounded by necrotic and dead cellular tissue. A very fine connective tissue stroma which was interlacing showed particularly well with Weigert's and van Gieson's staining methods. This connective tissue network could be traced back to a vascular origin. The neoplasm was very cellular, involving the retina and infiltrating the choroid. The main mass of the neoplasm grew into the vitreous, invading the retina where it came in contact. There was no extension into the sclera, and the optic nerve was not involved. In some of the vitreous portions of the growth a few rosette formations were seen.

There was no evidence from special staining methods that this tumor had a neuro-epitheliomatous origin.

The apparent rosette formation was due entirely to proliferation of cells arising from small blood vessels and represented early peritheliomatous proliferation of the walls of new blood vessels.

The diagnosis was: small round-cell sarcoma, resembling in architecture an angiosarcoma.

CASE 8.—B. N., a girl, aged 5. Intra-ocular tumor and perforation of right eye; neuroretinitis of left eye. Exenteration.

The eyeball, sectioned through the anteroposterior pole, showed a new growth, which infiltrated all the posterior structures. This tumor tissue was grayish-white, firm posteriorly, but gelatinous in the anterior portion. Perforation of the globe was taking place in the optic nerve region.

On microscopic examination after hematoxylin, eosin, Weigert's and van Gieson's and toluidin blue stains, the main tumor mass was located in the choroid in the posterior portion. In places the retina was detached, but near the posterior portion it showed marked infiltration of tumor cells, the neoplasm growing into the vitreous. Its architecture was the same as that found in the sarcomatous growth in the younger sister. Cellular elements were grouped around the blood vessels in the connective tissue matrix, giving the tumor the appearance of an angiosarcoma. These round cells were somewhat larger than those found in case 9. There was survival of cells around the blood vessels. Proliferation was very active. The peripheral portions of the alveolar arrangement showed much necrosis and many lime-salt deposits. Hemorrhage and disseminated pigment occurred as in the other case; this also was not a melanotic tumor. The neoplasm perforated the globe through the optic nerve, which was densely infiltrated.

In only one small area, and this in the retinal tissue, there was a suggestion of rosette formation. No rosette formation was seen in the choroid and the main mass of the tumor; special staining reactions for glia, nerve fibers, Cajal silver modifications and Alzeimer methods failed to show evidence of neuro-epitheliomatous origin.

The tumor masses in the orbital tissues showed the same architecture as the intra-ocular growth; no pigment.

The diagnosis was: round-cell sarcoma perforating the globe; angiosarcoma.

CASE 9.—D. N., a girl, aged 18 months. Intra-ocular tumor of each eye. Perforation of left eye. Exenteration. Death. Right eye enucleated after death.

Inspection of the left globe showed the eyeball enlarged, the tunics stretched. Sectioning of the globe through the anteroposterior pole showed that the entire contents were replaced by neoplastic tissue. This tumor formation was grayish white; the consistency was quite firm, and the new growth seemed firmly attached to the external coats. Posteriorly in the optic nerve region, there was perforation.

Microscopic examination after staining with hematoxylin and eosin, Weigert's and van Gieson's stains and toluidin blue showed a neoplasm which filled the entire contents of the globe and invaded every intra-ocular structure. With the exception of the cornea and sclera, no normal tissue was made out, and even these structures were densely infiltrated with the tumor formation. Perforation was extensive, particularly near the posterior pole of the eye. The choroid, retina, ciliary body and iris were totally destroyed with a growth which in part had an alveolar arrangement. The tumor was vascular and had a connective tissue framework. The cellular elements consisted of small round cells which in certain portions were closely packed together. Large round cells were abundant. These large and small round cells invaded all the structures of the globe.

Large areas of necrosis were seen where the cells were only faintly stained. Hemorrhage in the globe, particularly in the anterior portion, was extensive. There were many lime-salt deposits in the necrotic areas. In the posterior portion of the eye there was a good deal of pigment evidently not produced by the sarcoma cells. Pigment was of the migratory type. The optic nerve was thoroughly infiltrated with the neoplasm. There was no evidence of any neuro-epitheliomatous nature of the growth. There were no rosettes of Wintersteiner, and the special neuroglia and silver impregnation method (Alzeimer) and Cajal modifications showed no cell processes.

The extra-ocular tissue had the same architecture as the tumor mass in the globe. There was no pigment in the tumor cells.

The right eye showed the same type of tumor as found in the left eye. There was extensive invasion of all intra-ocular coats, and the vitreous was filled with the neoplasm. The origin of the growth could be traced with difficulty. The tumor apparently arose in the choroid and perforated the globe along the optic nerve sheaths. Microscopic examination showed a round-cell angiosarcoma. Special silver impregnation methods were tried on this eye, but the tumor cells did not take the specific reactions. Alzeimer methods fail to show a gliomatous nature of the cells. Rosettes were not found.

The diagnosis was: both eyes: round-cell sarcoma (small and large round cells) in part alveolar, invading all the structures of the globe, perforating the sclera and infiltrating the optic nerve. The origin of the tumor was questionable because

of the extensive involvement of all structures. Considering the architecture of the growth, this neoplasm had the characteristics of a nonpigmented sarcoma.

CASE 10.—E. R., a girl, aged 3. Intra-ocular tumor of right eye. Enucleation; recurrence; death.

The entire posterior half of the globe was replaced by a grayish-white tumor mass which had gelatinous consistency. On gross inspection the growth seemed to invade the choroid and grew forward toward the ciliary region. The retina was involved posteriorly. No tumor mass was found to invade the optic nerve sheaths. Microscopic examination of the tissue showed a very vascular tumor, alveolar in arrangement, chiefly choroidal, made up of large round cells. These round cells invaded the retina and were grouped around the central blood supply. There was survival of cells near the central portions of the alveoli. The peripheral portions, away from the blood supply, showed marked necrosis and lime-salt deposits. There was no pigment in the neoplasm cells. No rosettes were discovered and there were no cells of glioma type. There were many old hemorrhages with cholesterin crystal clefts. Weigert's and van Gieson's stain showed very fine reticulated connective stroma, more abundant near the larger vessels. Posteriorly, the sclera showed invasion. Tumor cells were also seen invading the optic nerve sheaths.

The diagnosis was: alveolar large round-cell sarcoma; very vascular.

ABSTRACT OF DISCUSSION

DR. HENRY C. HADEN, Houston, Texas: In reading this paper my attention was immediately attracted to the fact that all the cases were discovered in the last ten years, eight of them in the last five years. That this proportionately large number of children with intra-ocular sarcomas should be encountered in such a recent space of time and none prior to that by them must be significant of something, for, as is well known, Dr. Parker has seen a great many patients during the years that he has been in practice. Three reasons in explanation of this have suggested themselves to me: that intra-ocular sarcoma in children may be on the increase; that some of these nonpigmented growths were not sarcomas but were the so-called gliomas of the retina, and the possibility suggested by the authors in the fourth paragraph of their summary, that the new growths that have been called gliomas are not a clinical entity. In support of the last, it may be said that microscopically intra-ocular nonpigmented sarcoma resembles very much glioma of the retina, so much so that pathologists often differ as to the nature of the individual growths under consideration; and some eminent pathologists believe that what we term glioma of the retina is sarcoma. There is no tissue of mesodermal origin in the retina other than the arteries and the veins. The strand of connective tissue that accompanies the central artery and vein in the optic nerve is left behind at the lamina cribrosa, and where the vessels lie in the retina they are surrounded by glial, not fibrous, connective tissue. The branches of the vessels extend into the inner nuclear layer of the retina. It is from this layer that a large number of the gliomas are said to arise. Collins and Mayo state that sarcomas arise most frequently from the endothelium of the perivascular and interfascicular lymph spaces, but may arise from the endothelium of the blood vessels. Is it not possible that some of these tumors which are called gliomas are really sarcomas which have had their origin in the vessels of the inner nuclear layer? However, these are questions for the pathologists to decide, but the average pathologist has a very vague idea of the histology and development of the eye. As Ernst Fuchs says, the pathologic anatomy of the eye belongs distinctly to the ophthalmologists.

DR. WILLIAM C. FINNOFF, Denver: This paper illustrates the confusion that exists in the mind of most general pathologists regarding the nature of so-called glioma of the retina, or retinoblastoma. In my opinion the cases reported by Dr. Parker are retinoblastomas that have lost the characteristic histologic picture; and his original clinical diagnosis of glioma is correct. This opinion is based on several facts that are brought out in the paper. First, the age of the patients is against sarcoma. There is apparently no reason why this tumor should not occur in infants and very young persons, but it is probable that it occurs rarely. Sarcoma occurring in both eyes is most unusual, while bilateral retinoblastoma is frequent. In four of the ten cases reported, there were bilateral ocular neoplasms. In all the specimens there was some involvement of the retina. Primary sarcoma of the choroid always begins in this structure and proliferates, and when the growth has attained certain proportions, disintegrates, or ruptures the lamina vitrea and invades the interior of the globe. It pushes the retina in front of it and eventually detaches it from its base. It rarely ever invades the retina, especially in the earlier stages. Even in late cases the retina only becomes atrophic and is not invaded by sarcoma cells. The cells of retinoblastoma are of ectodermal origin and resemble embryonic retinal cells. Early in the development of the retina, the undifferentiated cells consist chiefly of nuclei with very little protoplasm and no cell processes. Their staining reactions are similar to young mesodermal cells, and for this reason differential staining throws little light on their true nature. The macroscopic appearance of glioma is characteristic when the eye is removed early. It consists of alternate groups of dark and lighter staining areas that surround centrally placed blood vessels. Their formation has frequently been mistaken for rosettes, which are totally different structures. However, when the tumor infiltrates the choroid, orbit or other organs of the body, it usually loses its characteristic appearance and cannot be differentiated from sarcoma. Rosettes are collections of radially placed cells that resemble rods and cones. The external limiting membrane is near the center of the rosette. The cells resemble the spokes of a wheel with the membrane situated at the rim of the hub. The rosette is not a characteristic of all retinoblastomas. It occurs in only about one fifth of the cases, and its absence does not exclude the possibility of a malignant retinal growth. The invasion of the orbit by an intra-ocular sarcoma is usually by way of the perivascular lymph spaces and rarely through the optic nerve. In glioma it is the opposite. In seven of the reported cases, extension had occurred into the optic nerve. One cannot exclude retinoblastoma by the examination of a few slides. Serial sections of the globe should be made and examined in doubtful tumors of the eye occurring in children. This becomes more important as the child grows older because of the possibility of distortion by pressure or other cause. Calcification occurs in any tissue that has become necrotic. It rarely occurs in sarcoma, but is common in glioma. It occurred in six of the eyes of the reported series.

DR. CONRAD BERENS, New York: I have always considered the type of tumor described by Dr. Parker as a neuroepiblastic growth arising from the retina, and not a mesoblastic tumor. My reasons for this classification are the apparent origin of the tumor from the neural epiblast of the retina and not from the mesoblastic structure in the retina or the retinal blood vessels. Further, the individual cells are similar to the developing cells of the embryologic retina. The fact that this particular type of tumor is never seen after the twelfth year would seem to speak for some indirect or direct relationship with the development of the retinal cells rather than from the blood vessels, which are present throughout life practically in the same condition as they are at 10 years of age. There is apparently no valid reason, however, why this growth could not be associated with the development of the mesoblastic blood vessels. I was struck by the statement that six of the ten tumors had their origin in the choroid and only two in the retina, for all the sections, with one exception, show advanced stages of this growth with orbital extension and involvement of the retina and choroid, so I cannot see how they could definitely state that these growths had their primary origin in the choroid, even though the bulk of the tumor mass was apparently in the choroid. My experience has been that if these growths are seen early, they all have their origin in the retina, and involve the choroid only secondarily. If six of these growths originated in the choroid

they must be mesoblastic in origin, as there is no epiblastic tissue in the choroid. It is strange that the mesoblastic cells of the choroid should give rise to tumors more frequently in later life than in early life and that the retinal mesoblastic cells should apparently give rise to tumors only in early life. In old chronically inflamed eyes we seldom if ever see mesoblastic or epiblastic tumors arising from the retina. It has been my experience to encounter this frequently in sarcoma of the choroid, which I believe points to the fact that this retinal growth has some connection with the development of the retina. The total absence of pigment is a point in favor of the epiblastic origin of the tumor, although tumors in early life are frequently nonpigmented. Another fact which points to the possible neuro-epiblastic origin of these tumors is that this growth is frequently bilateral and is seen at about the same time in the two eyes, whereas bilateral sarcoma of the choroid is rarely seen. The differences in the metastases of these two growths and some of the physical characteristics can be explained by the fact that the retinal growth develops in a loose tissue walled off from the vessels which permit general metastasis, by the lamina vitrea of the choroid, and that it can easily develop toward the vitreous. The choroidal growth, on the other hand, develops in a comparatively dense structure with easy access to the blood vessels, which accounts for the early metastasis to the liver; and the fact that the tumor is compressed by the lamina vitrea tends to produce slow development and possibly pigmentation. The similarity of the growth of these two tumors when they have extended to the orbit is possibly a point in favor of the mesoblastic origin. Dr. Parker has made a strong argument in favor of the mesoblastic origin of this tumor, and theoretically there is no reason why all these tumors could not develop from the retinal blood vessels; but until we actually see the tumor develop from a certain cell it will be difficult to state definitely its exact nature. It may possibly avoid confusion to speak of tumors of the retina and choroid of mesoblastic or epiblastic origin according to the pathologist's best judgment in each case, rather than label each growth in accordance with a preconceived idea of what we should find. After studying the sections, it is impossible to say where the cells originated except in case 7, and even in this case the tumor was sufficiently developed to have penetrated the choroid; in all the others the orbit was involved, and in my experience this rarely occurs in these early tumors of the retina until the cells from the retina have managed to pass around the lamina vitrea or into the anterior chamber and involve the choroid. I believe that the primary growth is in the retina in all these cases and that the greater bulk of the tumor seems to involve the choroid in several of the sections because the retinal growths have undergone degeneration.

DR. RICHARD C. GAMBLE, Chicago: The Alzeimer and the silver and gold impregnation selective staining methods give valuable aid in separating one type of tissue from another, and by virtue of this fact they are a great help in the classification of tumors. It is wise, however, when dealing with a subject as difficult as is the classification of the type of tumor under discussion to take a broader view of the subject and to give due weight to the gross pathologic characteristics and to some features of the clinical course. Its origin in the retina, in all probability in an embryonal, undifferentiated retina, and usually in the less vascular portion, its tendency toward multiple sites of origin in the same eye, and also its tendency to be bilateral in about 20 per cent of the cases, its tendency to various types of degenerative changes through poor blood supply, and the rarity of metastases in distant organs until there has been a gross extension extrabulbar, are important differences from sarcoma as we know it, and would seem to warrant placing this tumor in a class of its own. In regard to the finer microscopic distinctions, I believe it was shown by Dr. E. V. L. Brown some years ago that in what is called leukosarcoma of the choroid there is always some true melanotic pigmentation of some of the tumor cells. In these tumors arising from the retina there is never true melanotic pigmentation, though there is often hematogenous pigment from hemorrhages resulting from necrosis.

DR. MARY K. ASBURY, Cincinnati: I agree with the men who have discussed the paper, and wish to emphasize one point that seems of importance to me, and that is that, as a rule, sarcomas are vascular tumors, while the tumors which have been considered, as long as they remain intra-ocular, are characterized by a large amount of necrosis; that is, they rapidly outgrow their blood supply, and invariably the only living cells are situated close around blood vessels. Another point that occurred to me, and which Dr. Berens has already spoken of, is that the tumors reported in this series were very far advanced, which makes their origin difficult to determine. One tumor, similar to those reported, which I examined about a year ago was still in an early stage and filled only a very small part of the vitreous cavity. This tumor involved about one fourth of the retina, and there was only one very small area of choroidal infiltration. From a study of serial sections it was evident that the tumor arose from the nuclear layer of the retina. I feel sure that these tumors are neither gliomas nor sarcomas but are new growths of the retina.

DR. WALTER R. PARKER, Detroit: First, in regard to the incidence of intra-ocular tumors in children, we had seen these growths previous to the time the records of the cases reported in our paper were begun, but the material was not available for study. In regard to the classification, there is doubtless opportunity for difference of opinion. We should have been delighted if we could have submitted sections of the tumors to the various discussants and had them decide whether or not the tumors were retinal in origin. We feel that the more that were retinal, the stronger our position. The two classified as retinal were the only ones we felt at all certain about. I shall not discuss the subject from a pathologic standpoint but rather from that of a discontented clinician. When one enucleates an eye of an infant and receives a pathologic report of neuro-epithelioma that has perforated the sclera, and later the orbital tissue is subjected to a similar examination with the report of sarcoma, it is at least disconcerting. And still later, when the metastatic tissue is examined and another sarcoma is found, one cannot but wonder whether the primary lesion may also not have been sarcoma. I have very little concern as to the name given the tumor or where it originated, but I think that the two ends of the tumor should have the same name. For those who think these tumors are gliomatous, there are two significant points that can be observed by the clinician. The first is that gliomas are not metastatic tumors. The other point is that as a rule the epiblastic tumors are slower in growth than those of mesoblastic origin, and one of the most outstanding clinical points about these neoplasms is the rapidity of growth when released from the globe. All the characteristics of the tumor outside the globe are mesoblastic. Again, the influence of age of the patient on the character of the growth is still unexplained. All are agreed, I think, that at present the chapter on intra-ocular tumors in children is a most unsatisfactory one. There is still much to be done. We have not the last word. This is merely a suggestion; but it seems to us that if in the future we examine all the cases with the possibility that these retinal tumors may be mesoblastic, rather than to look for the minutest detail that might put them in the present classification of epiblastic tumors, in the course of time we shall get at the real truth.

Sanitation Following a Flood.—1. All wells and cisterns must be cleaned and then sterilized with chloride of lime. 2. If public sewers are not available, new sanitary pit privies should be built to care for human wastes. 3. Cellars should be cleaned, washed and brushed or sprayed with milk of lime solution or whitewash. 4. All rubbish, garbage, dead animals, etc., should be systematically gathered and burned or buried. Promiscuous scattering of lime on the surface does not do much good. 5. People should be exceptionally careful, practice personal cleanliness, and avoid contact with persons who are disregarding sanitary measures.—*Illinois Health News* **12**:347 (Oct.) 1926.

THE KAHN TEST

A SUPERIOR METHOD FOR THE SERUM DIAGNOSIS OF SYPHILIS *

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Although the Kahn test has been discussed in medical literature during the last four years, clinicians are not generally aware of its superior qualities, nor are they aware that the test offers a series of procedures the combination of which can give far more aid in the diagnosis and treatment of syphilis than the Wassermann test.

The outstanding feature of the Kahn test lies in the fact that it is based on a scientific foundation. As is well known, the technic of the Wassermann test is empiric, which explains why there are so many procedures. In the case of the Kahn test, however, every step is based on observed fact. Kahn,[1] for the first time, worked out a number of underlying principles which govern the precipitation phenomenon in syphilis, and with the evolvement of the Kahn test he has removed the serum diagnosis of this disease from empiricism and placed it on a basis approaching quantitative science. Indeed, there is reason to believe that this test will make possible the solution of many of the mysterious problems in this field, such as the relation of heart muscle antigen to syphilis, or the true meaning of a four plus reaction.

Another difference between the Kahn and Wassermann tests is that the former is a short and direct method while the Wassermann is a lengthy and indirect one. It is like the difference between going from New York to London by the direct route and by the roundabout way of San Francisco, Australia, India and the Mediterranean. In the Wassermann test one is watchful of the behavior, not of the patient's serum and antigen, but of the complement, amboceptor and red cells—ingredients unrelated to syphilis. In the Kahn test, serum and antigen are the basic ingredients. After they have been mixed in proper proportion, the test is completed in from ten seconds to three minutes; syphilitic serum shows a definite precipitate and nonsyphilitic serum remains clear.

The completion of the Kahn reaction without the necessity of incubation is the culminating achievement in the development of this test. And yet one finds some few American authors who speak of this test as a modification of this or that method. If these writers had taken the trouble to investigate, they would not have been guilty of so loose a statement. They would have found that, beginning in 1907, numerous attempts have been made by different investigators to evolve a practical precipitation test for syphilis, and that the reason these attempts have failed was that these authors lacked the foundation of governing principles of precipitation worked out by Kahn. He made a departure from accepted views, began at the bottom, laid a scientific foundation, and built a test that stands alone in the realm of the serum diagnosis of syphilis.

Recent reports on the Kahn test are almost invariably in favor of this test as compared with the Wassermann. Lederer,[2] in a comparative study of the two tests in 500 cases, concludes by recommending that "the Kahn test be accepted as a substitute for the Wassermann reaction on the blood serums in the hospitals of the United States Veterans' Bureau." Magalhães and Crespo de Castro[3] in a comparative study of 180 cases, found the discordant result of 2.2 per cent in favor of the Kahn, and only 0.5 per cent in favor of the Wassermann test. Duemling,[4] in 3,138 Kahn and Wassermann tests, found forty discrepancies. Of these, twenty-two were treated cases, two of which gave positive Wassermann and negative Kahn reactions, and twenty negative Wassermann and positive Kahn reactions. The remaining eighteen consisted of patients who presented themselves for diagnosis, and gave a positive reaction with the Kahn test and a negative reaction with the Wassermann. Fifteen of these were diagnosed as having syphilis, while three required further study.

A recent article from Kolmer's laboratory by Greenbaum[5] is of interest. The title is the "Error of Basing the Serum Diagnosis of Syphilis on the Kahn Reaction Alone." The data of this article are summarized in two tables, one showing fifty cases of treated and untreated syphilis in which the Kahn reaction was negative and the Kolmer-Wassermann was positive, and the other showing fifty similar cases in which the Kahn was positive and the Kolmer-Wassermann reaction negative. Either test was thus found to be negative in an equal number of cases of treated and untreated syphilis. An examination of the test further reveals that with the "error" mentioned in the title, the writer did not mean the "Kahn reaction alone," but "that the same is true with the Kolmer or any other complement fixation test, and to express the opinion that the serum diagnosis is best served by using both tests as a routine, as has been Kolmer's practice during the past year."

A more careful comparative study from Kolmer's laboratory is a recent article by Kelly,[6] who studied the Kahn and Kolmer-Wassermann test in 110 selected cases of syphilis. In five cases there was complete disagreement. Of this number, four cases of latent and neurosyphilis were positive with the Kahn test and negative with the Kolmer tests. One case with no history of syphilis and with clinical data which "revealed nothing of importance" was positive with the Kolmer and negative with the Kahn test. Of the remaining 105 cases, five were originally negative with the Kolmer test, becoming positive after the removal of the natural amboceptor from the patient's serum—a step which this test does not ordinarily require—and another case was negative with the Kolmer until after a month's antisyphilitic treatment, when it became positive. Thus, as many as ten cases of syphilis in this small group were originally negative with the Kolmer-Wassermann and positive with the Kahn test.

Our own data consist of 13,971 comparative Kahn and Wassermann examinations. The studies were

* From the laboratories of the U. S. Naval Medical School, and the Cooper Research Laboratories, George Washington University Medical School.

1. Kahn, R. L.: Serum Diagnosis of Syphilis by Precipitation: Governing Principles, Procedure and Clinical Application of the Kahn Precipitation Test, Baltimore, Williams and Wilkins Company, 1925.

2. Lederer, A.: Comparative Value of Wassermann and Kahn Tests, U. S. Vet Bur. M. Bull. **2**: 456 (May) 1926.

3. Magalhães, M., and Crespo de Castro, H.: The Kahn Serologic Test in Syphilis, Patoljia Geral. **11**: 1 (Jan.) 1926; abstr. J. A. M. A. **86**: 1806 (June 5) 1926.

4. Duemling, W. W.: Clinical Observations on the Kahn Test, J. Indiana M. A. **19**: 272 (July) 1926.

5. Greenbaum, S. S.: Error of Basing Serum Diagnosis of Syphilis on Kahn Reaction Alone, J. A. M. A. **86**: 1273 (April 24) 1926.

6. Kelly, R. L.: Clinical Study of Kahn Test and Kolmer Complement Fixation Test, J. Lab. & Clin. Med. **11**: 437 (Feb.) 1926.

begun more than a year ago in the laboratories of the U. S. Naval Medical School and of the George Washington University Medical School. It was thought that the cooperation of two institutions would bring together more varied experience and a more critical approach than is possible in one institution. The anti-ox hemolytic system was used in the Wassermann test at the George Washington University Medical School. This test has yielded satisfactory results during the last ten years, being uninfluenced by natural amboceptor and giving very few nonspecific reactions. The Wassermann test at the Naval Medical School was originally the Kolmer modification, but this was ultimately abandoned because of the time consuming procedures embodied in this test, and particularly because it had no advantages over simpler Wassermann procedures. The Kahn test was employed in both laboratories under similar conditions, precisely as outlined by Kahn.

Specimens of blood were obtained from patients entering the clinic of the George Washington University Medical School and hospital and from those admitted to the U. S. Naval Hospital. All stages of syphilis are represented, including treated and untreated; also all types of nonsyphilitic pathologic conditions which one meets in clinics and hospital practice. Many of the latent cases with an indefinite or undetermined diagnosis of syphilis in which one or both of the tests gave consistently positive reactions might perhaps have been classed "serologic syphilis." In order to simplify the tabulation of the data, a four, three or two plus reaction with either test was considered positive, while a one plus, doubtful or negative reaction was considered negative.

Comparative Results Between Kahn and Wassermann Tests in 13,971 Examinations

	No. of Cases	*K.R. Pos. *W.R. Pos.	K.R. Neg. W.R. Neg.	K.R. Neg. W.R. Pos.	K.R. Pos. W.R. Neg.
Primary syphilis.....	38	26	4	0	8
Secondary syphilis....	273	208	0	0	5
Tertiary (including cerebrospinal).....	474	455	8	3	8
Latent syphilis.....	424	332	9	18	65
Congenital syphilis...	8	8	0	0	0
Total cases.....	966	808	13	16	40
Negative.....	11,788	0	11,788	0	0
Total number tests...	13,971	808	11,801	16	40

* K.R., Kahn reaction; W.R., Wassermann reaction; positive, ++++, +++ or ++; negative, +, ± or —.

The accompanying table gives a summary of 13,971 examinations. Perhaps the most interesting record of this table is the greater sensitiveness of the Kahn than of the Wassermann test in primary syphilis. In a total of thirty-eight cases, eight, or 21 per cent, were positive with the Kahn and negative with the Wassermann test. This corroborates the studies of Keim and Wile,[7] Redfield[8] and others. In the remaining cases, although no marked difference in sensitiveness has been observed between the two tests, the observations in secondary (273 cases), tertiary (474 cases) and latent (424 cases) syphilis are in favor of the Kahn test.

Little has been written about the additional procedures of the Kahn test. Of these, the quantitative procedure is of the utmost importance to the clinician. In undertaking antisyphilitic treatment in a given case, the blood might show, let us say, 400 Kahn units; after the second and third courses, the units might be reduced to 200 units and 40 units, respectively. The regular or "routine" Kahn test would be four plus in each of the examinations, and would give the clinicians no guidance whatever as to the relation between the treatment and the serum reaction.

Soon after the Kahn test became the official method for the serum diagnosis of syphilis in the U. S. Navy (Dec. 31, 1925), the laboratories at the Naval Medical School began to report the quantitative Kahn test on all serums giving positive reactions with the routine test. This has attracted much interest among clinicians in connection with their treated cases, and has called forth considerable commendation.

Little need be said on the general satisfaction among the medical personnel of the navy on the abandonment of the Wassermann test and the making of the Kahn test the standard method. In many naval stations and aboard ship, the Wassermann test, because of its complexity and its use of animals, was not available, and in some tropical stations where the test was available the results were most unsatisfactory. Furthermore, even in the large naval hospitals, the test was run only twice a week. Now the report on a Kahn test can be obtained daily wherever the medical department has its personnel.

An additional Kahn procedure with serum is known as the "presumptive" procedure. This is a simple one tube test of somewhat higher sensitiveness than the routine diagnostic test, and is of especial value in checking weak reactions of the routine test. Such reactions should be positive with the presumptive procedure.

The Kahn spinal fluid test also embraces two procedures. One is run on a four plus basis and the other on a quantitative unit basis. Both of these spinal fluid procedures are reported to clinicians on all spinal fluids received at the Naval Medical School for examination. The quantitative procedure should prove of especial value in connection with present-day methods of treatment of neurosyphilis.

SUMMARY OF SUPERIOR FEATURES OF THE KAHN TEST

1. Unlike the procedure of the Wassermann test, which consists of arbitrary steps, the procedure of the Kahn test is based on a scientific foundation and is free from such steps.

2. The Kahn test is comparatively simple, direct and rapid, enabling clinicians to obtain Kahn reports from laboratories within several hours after submitting blood specimens, and in emergencies in less than an hour.

3. The Kahn test may be carried out everywhere in the world with the same degree of accuracy, thus rendering available a serum test for syphilis in the tropics and in other parts of the world where the Wassermann test, as a result of its complexity and use of animals, is either not available or available in a very limited degree.

4. The Kahn test consists of three serum procedures and two spinal fluid procedures capable of giving clinicians far more information in connection with the diagnosis and treatment of syphilis than the Wassermann test.

5. The Kahn test is more sensitive than the Wassermann test in treated cases and in the primary stage of syphilis. The test is also somewhat more sensitive than the Wassermann test in other stages of syphilis.

6. The Kahn test has removed the serum diagnosis of syphilis from empiricism and placed it in the realm of quantitative science.

7. Keim, H. L., and Wile, U. J.: The Kahn Precipitation Test in the Diagnosis of Syphilis, J. A. M. A. **79**: 870 (Sept. 9) 1922.

8. Redfield, K. T.: The Kahn Test as an Aid in the Diagnosis of Syphilis, Am. J. Syph. **9**: 354, 1926.

TREATMENT OF PHAGEDENIC ULCERATIONS OF THE GENITALS

WITH INTRAVENOUS ADMINISTRATION OF ANTIMONY AND POTASSIUM TARTRATE *

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Antimony and potassium tartrate is not the first of the double salts of this metal to be employed intravenously, for the lithium salt was used in 1907 by Plimmer and Thomson [1] for experimental trypanosomiasis in mice. In the following year, Broden and Rodhain [2] substituted the potassium salt, employing it in human trypanosomiasis. In 1913, Vianna and Aragão [3] first employed this drug in the treatment of granuloma inguinale. Since that period these injections have been given extensively in a great variety of chronic infectious diseases chiefly of tropical incidence, not only in the extensive group due to protozoans but in a few of the bacillary infections as well. Among the latter is the chancroid, and Goodman [4] of New York, in 1925, published the results of his treatment of this infection with the tartrate. Rupel [5] has recently reported the treatment of chancroidal ulcerations with local applications of antimony and potassium tartrate (tartar emetic).

The intravenous use of antimony and potassium tartrate is in no wise related to its former extensive employment in general practice, notably as an emetic and expectorant, and as a cardiac sedative in acute inflammatory conditions. The more recent uses in chronic infectious processes were suggested by the germicidal action of arsenicals in malaria, syphilis and the trypanosome diseases, since antimony belongs to the same elemental chemical group as arsenic, and since the poisoning of antimony closely resembles that of arsenic.

During the last two years, while experimenting with the treatment of a series of cases of granuloma inguinale at the New York City Hospital, we have used antimony and potassium tartrate in a number of other conditions with more or less success. Like other observers, our therapeutic results with granuloma inguinale have been variable. The majority of our patients responded very well to the intravenous injection of antimony and potassium tartrate, although it took from three to five months for complete healing. Several of our patients who were treated from three to four times a week for two months, with great improvement but incomplete healing were lost control of. These were seen a year later with recurrences. One of our patients developed a new granuloma in the right inguinal region, while the primary penile lesion had almost healed. In this case especially, and in several others, we have had very good results when the intravenous antimony and potassium tartrate was combined with the subcutaneous injections of the specific *Bacillus venereogranulomatis* vaccine.[6] Rupel's [5] recent report, in which he advocates local applications of antimony and potassium tartrate in chancroids, has been of great interest to us because we have had only poor success with that method. When we used antimony and potassium tartrate as a wet dressing in 0.5 or 1 per cent strength, the resulting irritation produced so much pain that the applications had to be discontinued.

We at first thought that antimony and potassium tartrate could be used as a therapeutic diagnostic test in inguinal granuloma. It was found, however, that simple chancroids as well as deep phagedenic ulcerations often responded to the intravenous injection of antimony and potassium tartrate. Our experiments, as well as those of others,[7] have shown that antimony and potassium tartrate, in fairly high dilution, was germicidal in vitro. Since 10 cc. was the maximum dosage given intravenously, it is seen that the dilution in the blood stream must be very high indeed. It seems to be not only germicidal, but also to stimulate repair when given intravenously. We, as well as others, have noted that soon after this therapy is instituted the lesions become sterile.[7] If the drug is then discontinued, repair will proceed very slowly or not at all.

Antimony and potassium tartrate is best used as a 1 per cent solution, and for the occasional user it is best procured in 5 or 10 cc. ampules. For hospital or clinic use it may be made up in quantities sufficient for several days, as on standing for longer intervals in large quantities it has a tendency to form a sediment. We have never noticed this phenomenon occurring in the ampules. The sterility of the solution is assured by its germicidal power. It should never be boiled, as this causes decomposition of the drug. The initial dosage should be 3 cc., so that the patient's sensitivity can be tested. The amount is then increased by 1 cc. at each injection until a maximum of 10 cc. is reached. Three or four injections a week may be given. They should be given slowly, as there is less tendency to reaction on the part of the patient. In phagedenic ulcerations, treatment should be continued until almost complete epithelization has taken place, but in cases of granuloma inguinale it should be carried on for several weeks longer to prevent recurrence.

Some of our patients showed a sensitivity to the drug which usually depended on the amount given, but in some of the cases just as severe a reaction followed the use of only a few cubic centimeters. The number who showed this reaction, however, were few. A mild reaction was marked by coughing and salivation either a few minutes after injection or while the drug was being given. In the more marked sensitivities the coughing was so severe that the patient became cyanotic and gasped for breath, and in the severe idiosyncrasies there was vomiting, which was sometimes projectile in type. It is curious, however, that, in our chronic cases in which previous methods of therapy had failed, the improvement in the lesions was so marked after a few injections that even a severe reaction did not lessen the patients' enthusiasm for this therapy. Repeated injections sometimes resulted in thrombosis

* Read before the Section on Dermatology and Syphilology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Plimmer, H. E., and Thomson, J. D.: A Preliminary Summary of the Results of the Experimental Treatment of Trypanosomiasis in Rats, Proc. Roy. Soc. Med. **79**: 505-516, 1907.

2. Broden, A., and Rodhain, J.: Traitement de la trypanosomiase humane, Arch. f. Schiffs- u. Tropen-Hyg. **12**: 443-455, 1908.

3. Aragão, H. de B.; Vianna, G., and Pesquozas Sabri, O.: Granuloma venereo, Mem. do Inst. Oswaldo Cruz **5**: 211-238, 1913.

4. Goodman, H.: Treatment of Chancroids with Tartar Emetic Intravenously, J. Urol. **13**: 489-492 (April) 1925.

5. Rupel, Ernest: Chancroidal Ulcers, Treated Locally, with Antimony and Potassium Tartrate Solution, J. A. M. A. **86**: 544-546 (Feb. 20) 1926.

6. Goldzieher, M., and Peck, S. M.: Specific Vaccine Treatment in Venereal Granuloma, Arch. Dermat. & Syph. **14**: 14 (July) 1926.

7. Small, J. C., and Julianelle, L. A.: Biological and Serological Studies of Bacillus Mucosus Group: Comparison of Strains of Granuloma Inguinale, with Strains from Respiratory Tract, J. Infect. Dis. **32**: 456-470 (June) 1923.

of the veins used similar to those produced by strong solutions of mercury. In advocating a new form of therapy, especially when it is to be given intravenously, it seems to us that only if the old methods fail or if it is a real improvement should it be resorted to. It was for these reasons that we treated our ordinary cases of chancroids with the usual routine methods and only if they failed was intravenous antimony and potassium tartrate used.

We have chosen, for presentation, the following three cases from those we have treated, because in our opinion they represent types of phagedenic ulcerations exclusive of inguinal granuloma in which antimony and potassium tartrate intravenously yields excellent results and is the method of choice. It not only caused quick subsidence of the discharge and prompt relief of pain and swelling in lesions that had proved so refractory to all other modes of treatment, but it also made unnecessary local applications which the presence of complications, such as phimosis and balanitis, made painful or difficult.

REPORT OF CASES

CASE 1.—A white man, aged 53, admitted, Sept. 9, 1925, was born in Germany but had been a resident of the United States for twenty-five years. He was married and lived with his wife. He did not think that he had syphilis or gonorrhea, but two weeks before admission he had noticed a small pimple on the under surface of the penis, which soon ulcerated. A local physician treated it with cautery and salves, but the ulceration slowly increased in size. As it did not yield to therapeutic measures, he was advised to go to the hospital.

On the dorsum of the glans penis there was an ulceration about 4 cm. in diameter. It extended beyond the corona on the shaft of the penis, burrowed under the glans and involved the foreskin. The ulceration was exposed with difficulty, because of a marked phimosis and balanitis. The lesion appeared quite deep, almost penetrating through to the urethra, and exuded a foul smelling greenish yellow pus. It was very tender, and any manipulation of the parts such as was required for local treatment was very painful. The inguinal glands on both sides were palpable but not tender. The Wassermann reaction was negative, and smears from the lesion were negative for Ducrey bacilli. A dark field examination for *Spirochaeta pallida* was also negative.

After the patient was admitted to the hospital, local treatment was attempted but proved unsuccessful, even after a bilateral slit had been made. October 13, 5 cc. of 1 per cent antimony and potassium tartrate was given intravenously. This was repeated, October 15. The following day the pain in the lesion subsided and the discharge was markedly lessened. As the patient became markedly cyanotic and vomited a great deal after each injection, the succeeding dose, October 17, was reduced to 3 cc. Two more injections of 3 cc. of 1 per cent solution were given at two-day intervals. The patient was treated over a period of eight days, during which time a total of 0.2 Gm. of antimony and potassium tartrate was used. On the ninth day after the institution of this therapy, the ulcer had completely healed and the patient was discharged.

CASE 2.—J. F., a white man, aged 28, born in Holland, admitted, Sept. 29, 1925, had been a seaman for the past four or five years, and was unmarried. There was no history of syphilis. Three months before admission, while the patient was in Central America, he contracted a gonorrheal urethritis. This was treated and in the course of about ten days the discharge from the urethra ceased. About a week later, he noticed a small "pimple" on the dorsum of the penis just behind the corona. This was not tender, nor did it ulcerate. With this, he had enlargement and pain in the left inguinal glands. Under treatment the penile lesion healed, but the inguinal glands increased in size and finally were incised. In spite of continuous treatment, the lesions in the left inguinal region refused to heal, and slowly increased in size. He was treated by a local physician in this city with cautery, excision and iodoform, with poor result.

On admission, he presented three ulcerations in the left inguinal region; a large oval lesion, situated along Poupart's ligament, 6 cm. long and 2 cm. at its greatest diameter, and two smaller ulcerations, situated close together below the larger one. They were sharply circumscribed and appeared to rise out of fairly normal skin. They appeared deeper than they really were because of the elevated puckered margins, which extended a centimeter or more above the skin level, and curled over the lesions. This was so marked in the smallest lesion that the base was barely visible. The floors of the ulcers were covered with a greenish yellow exudate, and they were quite tender to palpation.[3] The Wassermann reaction was negative, and smears of the lesions failed to show any Ducrey bacilli. Although clinically and on examination of smears there was no evidence of inguinal granuloma, a biopsy was thought desirable because of the history of tropical incidence. On examination, it showed a chronic infectious process of nonspecific character.

October 10, the patient received 3 cc. of a 1 per cent solution of antimony and potassium tartrate intravenously. This was increased by 1 cc. every other day until a maximum of 10 cc. was given. He received a total of 0.96 Gm. of antimony and potassium tartrate over a period of twenty-eight days. The lesions responded rapidly to this treatment. November 7, he was discharged with lesions completely healed.

CASE 3.—J. N., a white man, aged 40, admitted, Nov. 4, 1925, had lived in the United States all his life, chiefly in New York and its vicinity. He gave a history of chancre fourteen years before, with a course of antisyphilitic treatment at Bellevue, consisting of intravenous and intraspinal injections. For the past five years he had complained of head noises and deafness. He also had a gonorrheal infection twenty years before. Six weeks before admission the patient noticed a small "sore" on the under surface of the foreskin which he thought was due to chafing. This was two days after intercourse. He applied local medications without effect. About a week later, there developed several smaller lesions on either side of the first one. These also failed to respond to treatment. Three weeks before admission he noticed another ulceration on the corona, which spread rapidly from the corona to the dorsum of the shaft of the penis. The ulceration began to discharge profusely, and was very painful. He went to a dispensary, where cautery and salves were tried without benefit. He then developed marked edema of the foreskin, so that pain rendered further local treatment impossible.

On admission, the penis was edematous and reddened. The foreskin was retracted with difficulty, and as it rolled back there was seen on the dorsal undersurface of it a shallow, oval ulceration about 1 cm. in its longest diameter. On each side of it were two smaller, rather shallow ulcers. On the shaft of the penis, involving the corona for about 2 cm. and extending on the penis itself, was an irregularly circular ulceration which was in all about 3.5 cm. in diameter. It was well circumscribed, and surrounded by a narrow zone of redness. The ulceration was shallow, and it was covered with a dirty, grayish yellow exudate having a very foul odor. On palpation, the lesions were quite tender, and the margins showed some induration. The draining lymph nodes were palpable but not tender. The patient's blood Wassermann reaction was strongly positive. Scrapings from the lesion were negative for Ducrey's bacillus, and the dark field examination failed to reveal *Spirochaeta pallida*. Spinal tap was refused. The patient had sluggish and unequal pupils. The Romberg test was negative, and the knee jerks were present. From the history and physical signs, this case was diagnosed cerebrospinal syphilis, with chancroidal infection of the penis.

While under our care the patient received no local treatment, and the marked phimosis and swelling served to dam back all secretions.

November 15, he was given 3 cc. of 1 per cent antimony and potassium tartrate intravenously. This was increased by 1 cc. at each treatment until a maximum of 10 cc. was given. The patient received a total of nine injections given three times a week. After the fourth injection, the pain in the lesion disappeared, the exudate ceased, and when the foreskin was

retracted, the floor of the ulcers revealed a clean granulating surface. In twenty-four days after the onset of treatment the patient was discharged as cured.

SUMMARY

Cases of phagedenic ulcerations of the genitals that previously had not responded to local therapeutic measures were rapidly healed by the intravenous injections of antimony and potassium tartrate. This treatment should not be employed for simple chancroids, but reserved for those types of genital lesions which deep and rapid ulceration has rendered unsuitable for routine local measures.

ABSTRACT OF DISCUSSION

DR. ALDO CASTELLANI, New Orleans: Granuloma inguinale is a so-called tropical disease, but as a matter of fact it is more commonly encountered in the subtropics than in the true tropics. It was first found in India in 1889 by McLeod, and later in the West Indies by Conyers and Daniels, in 1896. As regards the etiology, I have no doubt that the so-called Donovan bodies are the real causative agents of the disease. In fact, I think that the presence of Donovan bodies in scrapings clinches the diagnosis. I agree with the authors that antimony and potassium tartrate is a specific for the disease, but in my experience it must be given in large doses and for long periods of time. I do not think that local applications do much good. They certainly do not cure the condition, unless antimony and potassium tartrate is given intravenously. It has been applied externally in ointments and in solutions, but, as a rule, both the ointment and the solution produce a severe inflammation, and I gave up their use long ago. What I have found useful in certain cases is the local application of phosphorated oil. Phosphorus in my experience has a specific action in dermal leishmaniosis, and by giving 4 or 5 drops of phosphorus oil (1 per cent) hypodermically every other day for three or four weeks, the results are very good. In granuloma inguinale phosphorus has no distinct specific action, but its local application is at times useful.

DR. HOWARD FOX, New York: I should like to say a few words about the use of antimony and potassium tartrate in the treatment of granuloma inguinale. It is generally agreed that its action in this disease is specific, though, as Dr. Castellani has said, it generally requires a large amount to produce healing. In many cases, an apparent cure is followed by relapse. It has been suggested that the drug be continued for several months after healing to increase the chances of a permanent cure. Antimony and potassium tartrate is generally well borne in the usual dosage; fatalities have, however, been reported by Johns and Gage of New Orleans from dosage larger than the average. In the two cases reported, the symptoms were those of antimony and potassium tartrate poisoning —punctate hemorrhage of the skin, yellow atrophy of the liver, and failure of postmortem clotting. It is therefore evident that the drug is not entirely devoid of danger. From the recent work of Randall, it would seem that better results can be obtained by the newer synthetic compounds of antimony than by antimony and potassium tartrate. The preparations that he used were antimony sodium thioglycollate and antimony thioglycollamide. In the nine cases in which they were used, there was a prompt and complete healing. Some of these cases had proved refractory to treatment with antimony and potassium tartrate.

DR. SAMUEL M. PECK, New York: It is true, as Dr. Castellani said, that the patients must be treated over long periods of time and given large doses. One of these patients was treated every other day for seven months. The reason the patient received no further treatment was that all available veins were thrombosed. We could give no more intravenously, and the other methods were too painful. As to the newer drugs that Dr. Fox mentioned, we are using them now and hope that we can report our results in the near future.

THE EFFECT OF CALCIUM LACTATE INGESTION ON SERUM CALCIUM *

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AND
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Kahn and Roe's [1] report on calcium absorption from the intestinal tract in human subjects appeared just as we were beginning to make hourly serum calcium observations after the ingestion of known amounts of calcium lactate. As our studies did not confirm those made by Kahn and Roe, we have continued our work. Since then we have completed the study of seventeen normal persons, nine after the ingestion of 5 Gm. and eight after the oral administration of 10 Gm. of calcium lactate. Cases of endocrine disturbances have also been studied, but they will be reported in a later communication.

Kahn and Roe speak of the number of milligrams of calcium per hundred cubic centimeters of blood—not stating whether they mean whole blood, serum or plasma. They used a method for determination that they had previously reported.[2] All calcium determinations in our series of observations were made according to the Clark modification [3] of the Kramer-Tisdall method. We have used this method daily for about a year and find that we can check our results as well as known calcium solutions within the percentage of error allowed by the titration method. The blood was collected in centrifuge tubes, the serum allowed to separate, and 2 cc. of this serum was then used for the analysis.

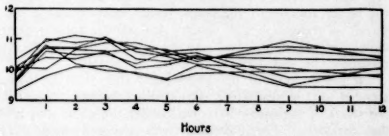

Chart 1.—Hourly calcium determinations in nine normal subjects after the ingestion of 5 Gm. of calcium lactate; the maximal elevation is 14 per cent, the lowest 5 per cent.

REPORT OF TEST IN NORMAL PERSONS

Nine normal subjects, who had fasted for at least twelve hours, were given 5 Gm. of calcium lactate followed by approximately 250 cc. of water, a control serum calcium having been obtained prior to the ingestion of the calcium lactate. Calcium determinations were then made every hour for the first six hours, and at the ninth and twelfth hours after ingestion. At the end of the sixth hour, the subject was allowed to have a light lunch containing from 25 to 35 mg. of calcium. The ingestion of this test amount of calcium lactate did have a definite effect on the serum calcium level, as is shown in chart 1. The maximal elevation obtained in this group was 14 per cent, the average maximal rise being 8 per cent, and the lowest elevation 5 per cent.

* From the Medical Laboratories of the Massachusetts General Hospital.

1. Kahn, B. S., and Roe, J. C.: Calcium Absorption from the Intestinal Tract in Human Subjects, J. A. M. A. **86**: 1761 (June 5) 1926.
2. Roe, J. C., and Kahn, B. S.: A Colorimetric Method for the Estimation of Blood Calcium, J. Biol. Chem. **67**: 585 (March) 1926.
3. Clark, E. P., and Collip, J. B.: A Study of the Tisdall Method for the Determination of Blood Serum Calcium with a Suggested Modification, J. Biol. Chem. **63**: 461 (March) 1925.

The maximal rises occurred as follows: two at the end of the first hour, two at the second, four at the third, and one at the fourth. The average curve of the nine observations is shown in chart 2.

This procedure was repeated, under similar conditions, on eight normal persons, 10 Gm. of calcium lactate instead of 5 being used. The eight subjects showed a much more striking rise of the serum calcium than did those receiving 5 Gm. Here the maximal elevation was 28.5 per cent as compared to 14 per cent,

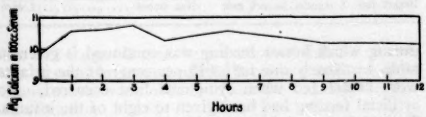

Chart 2.—Average curve obtained from the nine persons after taking 5 Gm. of calcium lactate; the average elevation in the serum calcium is 8 per cent.

and the lowest maximal was 5 per cent, the same as in the preceding series. These curves are shown in chart 3. The average maximal elevation obtained was 14 per cent in contrast to 8 per cent in the other group. The average curve for these eight persons is shown in chart 4. The maximal rise occurred in two subjects at the end of the first hour, in two at the second, in three at the third, and in one at the fifth.

COMMENT

Various workers have attempted to raise the calcium content of the blood by oral administration of calcium salts. Neither Clark,[4] working with rabbits, Kramer and Howland,[5] with rats, nor Denis and Minot,[6] studying human subjects, were able to demontrate any rise in the serum calcium after feeding calcium lactate.

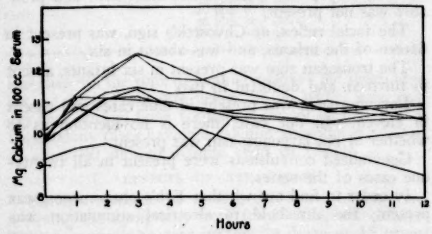

Chart 3.—The types of curve obtained in eight normal subjects after the oral administration of 10 Gm. of calcium lactate; the highest elevation obtained is 28.5 per cent, the lowest 5 per cent.

Salvesen, Hastings and McIntosh[7] report a 20 per cent rise in serum calcium in a dog after the oral administration of 7.5 Gm. of calcium chloride daily. Jansen[8] found calcium bicarbonate to be the most efficient calcium salt in raising the serum calcium of man, and calcium lactate the least serviceable. Hjort,[9] working with dogs, obtained his highest elevation of serum calcium with calcium lactate (17 per cent and 48 per cent), the next highest with calcium chloride (32 per cent), and about the same rise with both calcium glycerophosphate (8 and 9 per cent) and carbonate (7 per cent). Using calcium bicarbonate, he could not raise the serum calcium level. These dogs received 0.2727 Gm. of the calcium salt per kilogram of body weight.

In the present series of observations on human subjects, the highest rise in serum calcium obtained was 28.5 per cent in a single case after 10 Gm. of calcium lactate had been given. The average elevation for eight normal persons was 14 per cent. The maximal rise occurred anywhere from the first to the fifth hour. Seven of this group remained above their preingestion level at the end of the twelve hour period.

The maximal elevation obtained in nine persons after taking 5 Gm. of calcium lactate was 14 per cent, the average being 8 per cent. Only three of the nine subjects were back to their normal serum calcium level at the end of twelve hours. The rise of serum calcium obtained in our studies is certainly very small when compared to maximal rises of 43, 104, 105 and 108 per cent as reported by Kahn and Roe. Why there is such

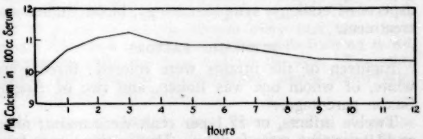

Chart 4.—Average curve for eight subjects after the ingestion of 10 Gm. of calcium lactate; the average maximal elevation is 14 per cent.

a marked discrepancy between our studies and those of Kahn and Roe is hard to say, for they state they have checked the Kramer-Tisdall method with their own chemical methods.

These observations in normal persons show that the fasting serum calcium level can be raised by the oral administration of calcium lactate, and that greater absorption is obtained after the ingestion of 10 Gm. than after the giving of 5 Gm. In the majority of subjects studied, this increase in serum calcium had not reached the preingestion level at the end of twelve hours. From our work it is impossible to say how much calcium is actually retained by the body, because no observations of calcium excretion were made.

SUMMARY

1. Calcium lactate administered in 5 Gm. doses to nine normal subjects gave a maximal elevation of 14 per cent of the serum calcium. This maximal rise comes between the first and fourth hours after ingestion, but some elevation is usually maintained over a period of more than twelve hours.

2. Calcium lactate given in 10 Gm. doses in eight normal subjects produced a similar, but more pronounced, increase in serum calcium, the maximal rise being 28 per cent, and occurring between the first and fifth hour. Again, some elevation was maintained above the fasting level for a period of twelve hours.

3. Our studies are in disagreement with those recently reported by Kahn and Roe, who have obtained

4. Clark, G. W.: Effect of Hypodermic and Oral Administration of Calcium Salts on the Calcium Content of Rabbit Blood, J. Biol. Chem. **43**: 89 (Aug.) 1920.

5. Kramer, Benjamin; and Howland, John: Factors Which Determine the Concentration of Calcium and of Inorganic Phosphorus in the Blood Serum of Rats, Bull. Johns Hopkins Hosp. **33**: 313 (Sept.) 1922.

6. Denis, W., and Minot, A. S.: Effects of Feeding with Calcium Salts on the Calcium Content of the Blood, J. Biol. Chem. **41**: 357 (March) 1920.

7. Salvesen, H. A.; Hastings, A. B., and McIntosh, J. F.: The Effect of the Administration of Calcium Salts on the Inorganic Composition of the Blood, J. Biol. Chem. **60**: 327 (June) 1924.

8. Jansen, W. H.: Kalkstoffwechsel, Blutkalkgehalt und Kalkwirkung, Klin. Wchnschr. **3**: 715 (April) 1924.

9. Hjort, A. M.: The Influence of Orally Administered Calcium Salts on the Serum Calcium of Normal and Thyreoparathyroprivic Dogs, J. Biol. Chem. **65**: 783 (Oct.) 1925.

increases in the blood calcium as high as 108 per cent after the ingestion of 5 Gm. of calcium lactate. This is more than seven times greater than we obtained in our maximal elevation after the same amount.

4. Similar observations on calcium absorption are being carried out on various types of endocrine disturbances to see if there is any deviation from the normal, and these will be reported at a later date.

INFANTILE TETANY

REPORT OF TWENTY-ONE CASES *

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The cases included in this series represent the total number of cases of infantile tetany treated in the Children's Hospital of Philadelphia during 1924 and the first nine months of 1925. These cases were studied at the instigation and under the direction of Dr. J. P. C. Griffith, to whom we are indebted for the privilege of reporting them. The cases have been studied from the aspects of etiology, symptomatology, blood studies and treatment.

ETIOLOGIC FACTORS

Eighteen of the infants were colored; three were white, of whom one was Italian, and two of Anglo-Saxon parentage.

Twelve infants, or 57.1 per cent, were males; nine, or 42.9 per cent, were females. That is, there were four males to every three females.

The age at which symptoms began was noted. From table 1, it will be seen that no cases began after the fourteenth month, and that eleven cases, or 52.4 per cent, began before the seventh month. Five cases, or 23.8 per cent, began before the age of 3 months.

TABLE 1.—*Age at Which Symptoms of Infantile Tetany Began*

2 months	5 cases	8 months	3 cases
3 months	1 case	9 months	1 case
4 months	1 case	10 months	3 cases
5 months	2 cases	12 months	1 case
6 months	2 cases	14 months	1 case
7 months	1 case		

Klose [1] says that most authors place the age of onset too high and states definitely that the disease never occurs under the age of 2 months. Table 2 shows the frequency of infantile tetany in the winter, spring and summer months.

TABLE 2.—*Frequency of Infantile Tetany in Winter, Spring and Summer Months*

December	1 case	April	5 cases
January	2 cases	May	2 cases
February	4 cases	June	3 cases
March	3 cases	July	1 case

Rickets was present in slight degree as indicated by costal beading, in two cases; in moderate degree, as indicated by costal beading plus epiphyseal enlargement, in eleven cases; in severe degree, as indicated by the foregoing signs plus marked chest deformity, in six cases. In two cases, no clinical diagnosis of rickets could be made.

The length of time of breast feeding is given in table 3. The proportion of the presymptomatic period during which breast feeding was continued is given in table 4. Nearly one half (43 per cent) of the infants were breast fed when symptoms first occurred. No artificial feeding had been given to eight of the infants. Two had been fed on condensed milk dilutions. In three cases, the infants had been fed on both whole milk and condensed milk dilutions. In one case, the type of feeding was not stated.

TABLE 3.—*Length of Time Infants Were Breast Fed*

No breast feeding	4 cases	Breast fed 6 months	1 case
Breast fed 1 month	2 cases	Breast fed 8 months	1 case
Breast fed 2 months	5 cases	Breast fed 12 months	1 case
Breast fed 4 months	3 cases	Breast fed 13 months	1 case
Breast fed 5 months	1 case	Not stated	1 case

TABLE 4.—*Proportion of Presymptomatic Period During Which Breast Feeding Was Continued*

In 9 cases	100 per cent	In 1 case	25 per cent
In 1 case	80 per cent	In 1 case	20 per cent
In 1 case	72 per cent	In 1 case	14 per cent
In 1 case	62 per cent	In 4 cases	No breast feeding
In 1 case	56 per cent	In 1 case	Not stated

Fifteen infants had had no cod liver oil; four infants had been given cod liver oil in an irregular and inadequate manner; in two infants, this was not determined.

SYMPTOMATOLOGY

Carpopedal spasm was present in four of the infants, and was not seen in sixteen. In one of the infants' records, carpopedal spasm is not mentioned and probably was not present.

The facial reflex, or Chvostek's sign, was present in fifteen of the infants, and was absent in six.

The trousseau sign was present in six infants, absent in thirteen, and doubtful in two.

Laryngospasm was present in nine cases and absent in eleven. In one case, there is no mention as to whether or not laryngospasm was present.

Generalized convulsions were present in all twenty-one cases of the series.

In order to find out whether Erb's phenomenon was present, the threshold to electrical stimulation was tested in thirteen of the twenty-one cases, according to the method described by Holmes.[2] The cathodal closing contraction was obtained at the levels shown in table 5. Of the thirteen cases so studied, 84.6 per cent gave contractions below 5 milliamperes and 63.8 per cent gave contractions below 4 milliamperes.

TABLE 5.—*Levels at Which Cathodal Closing Contractions Were Obtained*

1 milliampere plus	1 case	4 milliamperes plus	3 cases
2 milliamperes plus	4 cases	5 milliamperes plus	2 cases
3 milliamperes plus	3 cases		

BLOOD STUDIES

The large majority of cases showed a blood calcium of less than 9 mg. per hundred cubic centimeters, which

* From the Children's Hospital of Philadelphia.

1. Klose, E.: Arch. f. Kinderh. 67:439 (Oct.) 1919.

2. Holmes, J. B.: Tetany, Am. J. Dis. Child. 12:1 (July) 1916.

may be considered as a low normal figure. The calcium levels are shown in table 6. It will be noted that two cases showed calcium figures which can be considered normal (9.0 and 9.9). Howland and Marriott[3] say that in tetany, during the active stages, the calcium of the serum invariably is greatly reduced and may fall as

TABLE 6.—*Calcium Levels in Infantile Tetany*

From 5 to 5.9 mg.....	2 cases	From 8 to 8.9 mg.....	3 cases
From 6 to 6.9 mg.....	7 cases	From 9 to 9.9 mg.....	2 cases
From 7 to 7.9 mg.....	6 cases	Not studied	1 case

low as 3.5 mg. It must be presupposed that the calcium was present in an unavailable form in these two cases. These results were obtained from the blood at the time of admission.

The blood phosphorus levels are shown in table 7. Reduction of the phosphorus is noted, but this is very much less marked than the reduction of the calcium.

TABLE 7.—*Blood Phosphorus Levels in Infantile Tetany*

From 2 to 2.9 mg.....	5 cases	From 5 to 5.9 mg.....	4 cases
From 3 to 3.9 mg.....	None	From 6 to 6.9 mg.....	2 cases
From 4 to 4.9 mg.....	7 cases	Not studied	2 cases

The products of the blood calcium figures and the blood phosphorus figures are shown in table 8.

Classified according to the figures established by Howland and Kramer,[4] three cases, or 17.7 per cent, are above 40, in which zone they say rickets does not occur; eight cases, or 47 per cent, are above 30 and

TABLE 8.—*Products of Blood Calcium Figures and Blood Phosphorus Figures*

Ca × P.	10 plus in 3 cases
	20 plus in 3 cases
	30 plus in 8 cases
	40 plus in 2 cases
	60 plus in 1 case

less than 40, the zone of healing rickets; the remainder, six, or 34 per cent, are below 30, on which zone they say that normal bone formation cannot occur. All of these tetany cases having a calcium phosphorus product of about 40 showed definite signs of rickets.

EFFECTS OF TREATMENT

Various methods of raising the blood calcium and relieving the symptoms were tried. Calcium chloride was given orally to nine infants, in doses of 15 grains (1 Gm.) every three hours. Two of these patients received other treatment as well. The results may be presented briefly:

CASE 1.—A colored girl, aged 2 months, breast fed, with all the signs of active tetany, had a blood calcium on admission of 9.6, a phosphorus of 6.3, and a cathodal closing contraction of 4.5 milliamperes. There were persistent convulsions for seven days after admission, notwithstanding the constant use of sedatives and the giving of cod liver oil, 10 drops, three times a day. Calcium chloride was then given, and after the second dose the convulsions ceased. After five days' treatment with calcium, the cathodal closing contraction had increased to 6 milliamperes.

CASE 2.—One of twins, white, aged 2 months, also had persistent convulsions, which were relieved only by the administration of calcium chloride every three hours. The blood calcium on admission was 9.3; a week later it was 9.8, and the phosphorus, 5.6.

CASE 3.—An infant was given calcium chloride for two and a half weeks, the blood calcium rising from 5.5 to 7.1, and the phosphorus from 4.5 to 5.1. At the end of this time, the Chvostek sign was still positive.

CASE 4.—An infant received calcium chloride for two weeks with nine quartz lamp treatments; the blood calcium rose from 7.8 to 10.7, and the phosphorus from 4.9 to 5.8.

CASE 5.—To an infant, admitted in convulsions with an apical pneumonia, calcium chloride was given for a week, and there were no convulsions. The blood calcium rose from 6.2 to 7.2. During this period, the calcium was omitted on two different occasions for twenty-four hour intervals, with a return of the convulsions each time. The calcium chloride was discontinued at the end of a week, and 1 drachm (4 Gm.) of cod liver oil was given twice a day, together with daily quartz lamp exposures. After six exposures, the blood calcium had risen from 7.3 to 9.2.

CASE 6.—An infant, admitted in convulsions, received 10 grains (0.65 Gm.) of calcium chloride three times a day. The convulsions ceased, and at the end of fifteen days, the blood calcium had fallen from 8.1 to 7.4, and the Chvostek sign was still positive.

CASE 7.—An infant was admitted in convulsions, with a pneumonia; 1 teaspoonful of cod liver oil three times a day and 10 grains of calcium chloride every four hours were given. The blood calcium rose in one week from 6.1 to 8.4, although the child had fever most of the time. Two other infants were admitted in convulsions, which ceased after calcium chloride was given.

Ammonium chloride was given orally, 7 grains (0.5 Gm.) three times a day in the following three cases:

CASE 8.—This infant had convulsions for a week before admission, with a bronchopneumonia and an otitis media. After the ammonium chloride was begun, there were no more convulsions. The blood calcium on admission was 8.4, the phosphorus, 2.7.

CASE 9.—A breast fed infant with latent tetany had been given 15 drops of cod liver oil a day three weeks prior to admission. Ammonium chloride was given for two weeks, and the blood calcium rose from 5.8 to 7.7, and the phosphorus from 2.1 to 3.2. Three weekly exposures to the quartz lamp were then given, the ammonium chloride being continued. At the end of that time, the blood calcium had fallen slightly to 7.2, and the phosphorus had increased to 3.6. Both the Chvostek and Trousseau signs could still be elicited.

CASE 10.—An infant, admitted in convulsions, with some cough and fever, was given ammonium chloride for a month. There were no convulsions, but the blood calcium dropped from 7.8 to 7.0, and the phosphorus from 5.1 to 3.6. Calcium chloride, 7 grains (0.5 Gm.), three times a day, was then given for two weeks, with a further drop in the blood calcium to 6.1 and of the phosphorus to 2.8. Laryngospasm was present, and the Chvostek and Trousseau signs continued positive.

Cod liver oil was tried alone in one case, and with quartz lamp exposures in another case:

CASE 11.—An infant with bronchopneumonia and acute otitis media had had convulsions on the day prior to admission. The fever subsided one week after admission, and 1 teaspoonful of cod liver oil was then given twice a day. In eleven days the blood calcium rose from 6.6 to 10.7, and the blood phosphorus from 2.4 to 3.4.

CASE 12.—This infant was admitted with a slight bronchitis and a history of convulsions the day before. One-half drachm (2 cc.) of cod liver oil was given twice a day for ten days, and five quartz lamp exposures during the eighteen days after

3. Howland, John; and Marriott, W. M.: Quart. J. Med. **11**: 289 (July) 1918.
4. Kramer, Benjamin; Tisdall, F. F., and Howland, John: Infantile Tetany, Am. J. Dis. Child. **22**: 431 (Nov.) 1921. Howland, John; and Kramer, Benjamin: Calcium and Phosphorus in Serum in Relation to Rickets, Am. J. Dis. Child. **22**: 105 (Aug.) 1921; J. Biol. Chem. **43**: 35 (Aug.) 1920.

admission. At the end of this time, the blood calcium had risen from 7.5 to 9.6. Seven additional treatments with the quartz lamp were given in the succeeding five weeks, with a further rise of the calcium to 12.1.

The mercury vapor quartz lamp, without other treatment, was used in one case:

CASE 13.—An infant had an acute bronchitis and otitis, and after five daily quartz lamp exposures of three and a half minutes, the blood calcium rose from 6.8 to 9.9 in the period of six days.

COMMENT

Disorders of the calcium metabolism are not always indicated by changes in the calcium content of the blood. There may be defective utilization of calcium by the body, even when the amount of that element in the food or blood is normal. This is well illustrated in cases 1 and 2. Both infants had active tetany, and yet, on admission, one had a blood calcium of 9.6 and a phosphorus of 6.3, and the other a calcium of 9.3 and a phosphorus of 5.6.

We found that calcium chloride and ammonium chloride were specific in relieving the convulsions of tetany as long as they were given. In case 5, when the calcium chloride was discontinued, even for a day, the convulsions reappeared. Furthermore, the signs of latent tetany, such as the Chvostek and Trousseau signs, were found present even after several weeks' administration of either salt. In the main, there was an appreciable elevation of the blood calcium after the giving of either salt, but in cases 6 and 10, there was a definite lowering. Cod liver oil in large doses, when combined with calcium chloride (case 7), or by itself (case 11), slowly and permanently raised the blood calcium into the normal range. Ultraviolet ray treatment gave the most rapid restoration of the blood calcium to normal figures (case 3).

From the literature, it would appear that a lowering of the blood calcium is essential in infantile tetany, and that the administration of calcium chloride raises the blood calcium to normal or almost normal figures as long as the medication is continued.[5]

There is some difference of opinion about the efficacy of ammonium chloride, Blühdorn and Thyssen [6] stating that it does not act as rapidly as calcium chloride, while Woringer [5] says that it has an equivalent action. Gamble and Ross [6] say that ammonium does not raise the blood calcium.

The inorganic phosphorus in infantile tetany shows marked variations, and an increase does not seem to be responsible for the tetany.[4] On the administration of calcium chloride, the inorganic phosphorus is not increased, and if the phosphorus is normal, the giving of calcium chloride causes a definite decrease.[7]

Frequent treatments with the mercury vapor quartz lamp give the quickest and most permanent results. Both the tetany and the accompanying rickets are cured.[8] The ultraviolet rays raise the calcium concentration and also that of the inorganic phosphorus to normal by causing increased absorption of these elements from the gastro-intestinal tract.[9]

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SUMMARY AND CONCLUSIONS

1. In a group of twenty-one cases of infantile tetany, analyzed as to etiologic factors, symptoms, blood findings and treatment, the findings as a whole confirm those of other writers' reports.

2. No patients were seen who did not at some time have generalized convulsions.

3. The age incidence of these cases is on the average lower than that of most series reported.

4. None of the infants had had consistent prophylactic treatment with cod liver oil.

5. Infantile tetany may occur with a blood calcium within the normal range, as illustrated by two of our patients. One of these infants (case 1) had a relatively and absolutely high blood phosphorus.

6. The ratio of phosphorus to calcium in this series of cases is higher than the normal, but this is attributed to the low calcium figures.

7. Mercury vapor quartz lamp irradiations appear to cause the most rapid restoration of the blood calcium to normal values.

8. The administration of calcium chloride appears to have the most prompt effect in causing the convulsions to cease.

CALCIUM, CHLORIDE AND CARBON DIOXIDE CONTENT OF VENOUS BLOOD

IN CASES OF GASTRODUODENAL ULCER TREATED WITH ALKALIS *

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It is an accepted fact that the reaction of the blood in health is slightly on the alkaline side of neutrality (about p_H 7.4, with minimum and maximum limits of variation in disease at p_H 6.9 and 9). This constancy of reaction is supported by numerous mechanisms known as the buffer system which prevent extremes of acid or alkali in the interest of health and even the maintenance of life. The acids produced by the metabolic activity of the tissues, and the bases introduced into the blood through the gastro-intestinal tract, are normally excreted, destroyed or converted into neutral substances. The lungs take over the excretion of the volatile acids, while the nonvolatile acids and bases are excreted by the kidneys. Furthermore, through the buffer system of the body fluids, especially by means of the hemoglobin, the bicarbonates and phosphates of the blood, these acids and bases are transported from the intestines and body cells to their organ of excretion without ordinarily causing any marked variation in the reaction of the body cells and fluids. Thus the normal alkalinity of the blood, the acid-base equilibrium, is maintained under normal conditions of health.

Wilson,[1] in 1923, showed that the normal activities of life produce certain variations in this reaction which approach temporarily the limits. For example, the alkalinity of the blood is higher at night than during the day. After meals there occurs the so-called alkaline tide—ascribed to the taking up of hydrochloric acid

* From the Lahey Clinic.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Wilson, D. W.. Physiol. Rev. **3**: 295 (July) 1923.

during digestion. Voluntary overventilation produces a more alkaline blood than normal.

Pathologic disturbances of the acid-base equilibrium to the acid side have for many years been recognized in the condition termed acidemia or uncompensated acidosis. Blum,[2] in 1913, in a discussion of the symptomatology and therapy of diabetic coma, refers to previous reports of Hansen and Weiland, and discusses four cases of his own observation in which the administration of sodium bicarbonate produced epileptiform convulsions with fatal results.

In abnormal conditions, such as in the so-called gastric tetany, or with the excessive administration of sodium bicarbonate, the abnormally alkaline condition of the blood has been recognized. Within recent years other disturbances associated with a shift to the alkaline side have also been noted. Hardt and Rivers,[3] in 1923, Brown, Eusterman, Hartmann and Rowntree,[4] in 1923, Ellis,[5] in 1924, and Houghton, Venables and Lloyd,[6] in 1925, reported the clinical picture of alkalemia and alkalosis in the alkaline treatment of gastroduodenal ulcer, and in pyloric obstruction. Renal insufficiency is considered by these authors as a factor of considerable importance, causal or coincidental, in the production of this condition.

Criticism of the alkali method of therapy as carried out by Sippy in his system for neutralization of free hydrochloric acid has included the following alleged factors: (1) that it is a symptomatic treatment only; (2) that the excessive ingestion of alkalis stimulates temporarily or permanently the excessive secretion of acid; (3) that injury to the kidneys, the so-called scratching of the kidneys, results from the excessive elimination of alkalis, and (4) that the condition of alkalemia with serious consequences may be produced by this treatment.

This paper is concerned only with the last of these considerations—namely, the relationship of alkalemia (or disturbed acid-base equilibrium to the alkaline side) to the Sippy treatment of gastroduodenal ulcers. In a series of 100 cases so treated in the Lahey Clinic between January, 1925, and March, 1926, the clinical symptoms associated with alkalemia were noticed by us in three cases which will be discussed later. In the other ninety-seven cases, although very large amounts of alkalis were administered over a prolonged period, the patients being under close observation for from six to twelve months, no untoward symptoms were observed. It therefore became a matter of interest to determine to what extent, if at all, the acid-base equilibrium of these patients was disturbed. It was also hoped that a limit of safety might be established in such cases for an increase in carbon dioxide content.

Forty-one cases of ulcer and ten normal cases were studied over a period of three weeks, the ulcer cases at the beginning of their management according to the Sippy method, the normal persons at their usual activities, and ingesting no alkalis not contained in their usual diet.

It has been shown by Henderson[7] that the fixed carbon dioxide and the chloride content of the blood are important variables, and if these two or any other two of the six important variables mentioned by Henderson are determined, the values of the other variables will be predetermined. The hydrogen ion concentration estimation was not practicable in our laboratory. The chloride and carbon dioxide content estimations were chosen because they were practicable. Furthermore, as large amounts of calcium in the form of phosphate and carbonate were administered, it became of interest to determine whether or not the calcium was excreted at once by the intestinal tract, or whether enough was absorbed to upset the normal acid-base equilibrium, or to injure the kidneys in the process of excretion.

The estimations were made by the following methods: The blood was taken from the median basilic vein. The fraction for carbon dioxide determination was placed immediately under oil with potassium oxalate for the carbon dioxide and chloride estimations, and the rest was used for the serum calcium estimation. Determinations were made by the Van Slyke[8] method for carbon dioxide, by the Kramer-Tisdall[9] method for calcium, and by the Whitehorn[10] method for chloride.

Levels and Variations in Individual Cases in Calcium, Chloride and Carbon Dioxide of Normal Cases as Compared with Ulcer Cases

	Mg. per 100 Cc. Calcium	Mg. per 100 Cc. Chloride	Per Cent by Volume Carbon Dioxide
TEN NORMAL CASES			
Levels:			
Maximum	13.3	620	58.3
Minimum	8.6	507	41.6
Average level	10.9	593	50.9
Variations in individual case:			
Maximum	3.2	(100) 51	8.8
Minimum	1.2	8	4.1
Average variation	2.3	36	6.2
FORTY-ONE ULCER CASES	Calcium	Chloride	Carbon Dioxide
Levels:			
Maximum	15.3	658	73.5
Minimum	6.2	422	20.7
Average level	10.7	570	53.6
Variations in individual case:			
Maximum	6.3	194	52.8
Minimum	0.6	16	5
Average variation	2.5	57.1	16

The first blood was taken before the ulcer patients began treatment. Many, however, had been using alkalis (chiefly sodium bicarbonate) promiscuously for the relief of distress. The average amount of alkali used by the patients in twenty-four hours during the initial treatment was calcined magnesia, 24 grains (1.5 Gm.); calcium carbonate, 133 grains (8.5 Gm.), and sodium bicarbonate, 425 grains (27.5 Gm.). With this amount, neutralization of the gastric contents was obtained, as shown by an absence of free hydrochloric acid on aspiration at intervals during the twenty-four hours.

The results were obtained in thirty-one cases of duodenal ulcer, seven cases of gastric ulcer and three cases of jejunal ulcer. The diagnosis was made in each case by the history, laboratory and roentgen-ray examination after a period of at least three days' observation in the hospital. All the cases made satisfactory clinical progress without signs of alkalemia.

A comparison of results in two groups of cases showed a wide variation with higher maximum and

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lower minimum levels in calcium, chloride and carbon dioxide content in the ulcer cases than in the normal cases. A study of the graphs made from these estimations showed a tendency in the chloride and carbon dioxide levels to be more nearly grouped around the normal levels at the end of three weeks' treatment than during the first few days, indicating possibly an instability of the acid-base equilibrium with the first extensive absorption of alkalis, and a later adjustment of the excretory organs to this continued absorption.

CASES SHOWING ALKALEMIA

CASE 1.—A woman, aged 51, with duodenal defect without obstruction, was first admitted in August, 1925, with a red cell count of 2,809,000, a blood pressure of 156 systolic and 82 diastolic, normal urine, and a nonprotein nitrogen of 25. There had been no massive hemorrhage, but the stools showed + + occult blood, and the patient's history and condition made it probable that she had been suffering from a persistent slight hemorrhage. Transfusion was done and the patient was submitted to the usual Sippy regimen with excellent clinical results. Check-up observations two and four months later were entirely satisfactory. Seven months later, however, she began to complain of dryness of the mouth and throat, persistent headaches, rigidity of the facial muscles and loss of memory. Her countenance was greatly changed; she had a slow speech and a hoarse voice, giving her the appearance of myxedema. The basal metabolic rate on two successive days was + 24 and + 8. Urinalysis showed albumin, red blood cells and granular casts. The blood calcium was 13.4; chloride, 464, and carbon dioxide content, 80.5. Alkalis were discontinued entirely, with an immediate restoration of her condition to normal.

CASE 2.—A woman, aged 62, with duodenal defect without obstruction, admitted January, 1926, had had a chronic ulcer with recent slight persistent hemorrhage. The course of treatment was uneventful until the thirteenth day when, with the onset of a respiratory infection, she began to notice dryness of the mouth and a distaste for food. At this point the blood calcium, chloride and carbon dioxide content were 11.1, 565 and 70.2, respectively. They had previously been normal. Alkalis were at once reduced, and the next readings within three days were 11, 582 and 56.4. With reduced alkalis, the free hydrochloric acid was still neutralized, and she felt well. There was no elevation of nonprotein nitrogen, and no change in the urine at the time when the carbon dioxide was elevated.

CASE 3.—A man, aged 32, with duodenal defect, admitted in July, 1925, had had an ulcer for fifteen years, and recently very severe distress with + occult blood in the stools. A treatment of rest and a diet regimen had been without results. The blood pressure was 110 systolic and 68 diastolic; the urine was normal; the nonprotein nitrogen, 27. The carbon dioxide combining power (at that time the test for the carbon dioxide content was not done in our laboratory) was 62. The usual treatment was begun, and his distress was relieved, but eleven days after the beginning of treatment he began to look pale, to complain of dryness of the mouth and nausea, and to vomit. The carbon dioxide combining power rose to 96. There was no other symptom of alkalosis except the dryness of mouth, nausea and vomiting. Alkalis were discontinued, but distress recurred. A smaller amount of alkalis was then used with relief of pain, and with no recurrence of nausea, but without neutralization of free hydrochloric acid. Three weeks after leaving the hospital he was readmitted with recurrent pain. Alkalis were increased with recurrent nausea, a carbon dioxide combining power of 75, nonprotein nitrogen of 29 and 36, and the slightest possible trace of albumin and hyaline casts in the urine. The patient was then operated on.

These three cases show that:

1. There need be no evidence of previous kidney lesion for the onset of alkalemia.

2. Patients under 40 may be affected by alkali to the point of alkalemia (contrary to the report of Houghton, Venables and Lloyd).

3. Patients may tolerate alkalis well for several months, and then suffer a change in acid-base equilibrium of the blood to the point of alkalemia with the usual clinical picture.

4. Excessive dryness of the mouth and throat precedes other symptoms of alkalemia (not stressed in the literature). Loss of appetite, nausea and vomiting, persistent headache, pruritus, mental depression, loss of memory and loss of energy may follow.

5. Red cells, hyaline casts in the urine, and a rise in blood nitrogen usually accompany severe alkalemia, but no evidence of renal insufficiency need be present at the onset of symptoms, or with the first rise of carbon dioxide content.

6. With the omission or diminution in the amount of alkalis given, there is an immediate restoration of the acid-base equilibrium, an immediate relief of symptoms, and the return of urine and nonprotein nitrogen to normal.

A level of from 67 to 70 carbon dioxide content, and of from 70 to 80 carbon dioxide combining power may be regarded as an indication of beginning alkalemia and is now used by us as an index for reduction in alkalis.

Houghton, Venables and Lloyd point out that alkalemia occurs only in cases of duodenal ulcer. These three cases also showed only duodenal lesions. These authors note the occurrence of alkalemia only in patients over 40 years of age; our series includes a man of 32. Pyloric obstruction appeared to be of little significance in their series; it is likewise not a factor in these three cases. Previously existent renal disease was found in only one of their seven cases. Evidence of it was observed in none of these three cases.

That previously existent renal disease may be present in a patient who tolerates alkalis without the development of alkalemia is illustrated by the following case:

CASE 4.—A man, aged 50 with a history of perforated pyloric ulcer, operated on three years before the present admission, which was in October, 1925, presented a hernia in the scar, for which he wished surgery, and a history of recent distress from his ulcer with other evidence of its activity. Urinalysis showed a trace of albumin. Phenolsulphonphthalein excretion in several repeated observations was 2, 8, 0, 2 and 0 per cent. Nonprotein nitrogen was 51, 73, 54, 54 and 74. Roentgenograms of the kidneys showed no abnormality. Surgery seemed contraindicated, and alkali therapy seemed to be a risk. Rest and a dietary regimen with a support for the hernia had good results temporarily, and the patient was discharged in November in good condition. One month later he returned with recurrence of severe ulcer distress, showing phenolsulphonphthalein excretion of 10 and 2 per cent, with a slight trace of albumin and red and white cells, but no casts in the urine. The nonprotein nitrogen was 73; the blood pressure 112 systolic and 68 diastolic. In spite of the apparent contraindications, alkalis were used in twenty-four hour quantities of calcium carbonate, 160 grains (10 Gm.), and sodium bicarbonate, 160 grains, with neutralization and relief of distress. Careful observation for a week showed a drop in nonprotein nitrogen to 56, with no change in the phenolsulphonphthalein excretion. This patient has now been on alkali management for four months, feels better than for years, and at the last observation showed a urine of alkaline reaction with a slightest possible trace of albumin and some white cells, a phenolsulphonphthalein excretion of 0, a nonprotein nitrogen of 21, a blood calcium of 14, chloride of 546 and carbon dioxide of 48.5. That the failure to excrete phenolsulphonphthalein is due to a curious selective excretory activity of his kidneys, and not to general renal insufficiency, is a possibility.

CONCLUSIONS

From this study it may be concluded that in cases of gastroduodenal ulcer treated with large amounts of alkalis and showing no untoward clinical symptoms:

1. The average level of plasma chloride of venous blood is lower by 23 mg. per hundred cubic centimeters than the normal, and the average variation in individual cases greater.

2. The average level of carbon dioxide content is higher by 2.7 per cent by volume than the normal, and the average variation in individual cases greater.

3. The average level of serum calcium content and the average variation in individual cases is approximately the same as normal.

It is suggested by the estimations made that the acid-base equilibrium is at first somewhat disturbed by the influx of alkalis, but, within a few days, levels of chloride and carbon dioxide content which approach normal are reached, and in the large majority of cases there is no chemical or clinical disturbance due to alkalosis. In the small percentage of cases that show clinical signs of alkalemia, the carbon dioxide content shows a marked rise; the calcium content tends to rise, and the plasma chloride to diminish. The level of carbon dioxide content at which symptoms appeared in these cases is 70 per cent by volume (a combining power of approximately 80). The possible occurrence of alkalemia, with onset as late as several months after the beginning of treatment, makes it necessary to keep patients who are using alkalis under observation.

It is suggested that a minimum dosage of alkalis necessary for neutralization be established in each case.

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ABSTRACT OF DISCUSSION

DR. GEORGE B. EUSTERMAN, Rochester, Minn.: The fact that alkalemia is possible during the alkali, milk and cream treatment of peptic ulcer is not generally appreciated. This contribution by Dr. Jordan will serve a useful purpose. The nature and incidence of this intoxication was first reported by two colleagues in my service, Drs. Hardt and Rivers. Alkalosis from the gastro-enterologic standpoint occurs under two main circumstances: first, during treatment, as just described, and, second, in cases of high grade or chronic pyloric obstruction or marked gastric retention from whatever cause. Its prompt recognition and treatment, as described by McVicar and others, is very essential. The marked reduction in surgical mortality following operation on dehydrated, toxic patients by proper preoperative preparation is a real achievement in this field of medicine. The profession realizes that the Sippy treatment cannot be carried out indiscriminately; otherwise the foregoing complication may obtain in about 25 per cent of the cases. Opponents of this method of therapy have made great capital out of it. But alkalis will be continued to be used in the treatment of ulcer as digitalis is for certain forms of cardiac disease, and rightly so. Complete neutralization of the free hydrochloric acid is not essential to healing. In hospitalized patients who tolerate alkalis poorly we have recently discovered that from one-half to one-fourth the dose would bring about the desired chemical changes, and normal or increased amounts of alkali would provoke the characteristic toxemia The clinical picture of alkalemia as described by the author is comparable with my own experience. Elderly patients, and those with diseased livers and kidneys, seem more liable to the intoxication. Withdrawal of alkalis and temporary substitution of fruit juices brings about a speedy recovery, unlike alkalosis of the second group with obstructing lesions. We have not found any great variation in the calcium content of the blood even in patients with marked toxemia. There may be a normal variation of from 10 to 15 per cent from the average. Alkalemia, as estimated by carbon dioxide combining power of the blood plasma, is significant when marked changes occur. In our experience, gastric tetany occurs only with a high grade alkalemia, the blood plasma containing from 100 to 110 or more per cent by volume of carbon dioxide.

DR. VICTOR C. MYERS, Iowa City: The subject that Dr. Jordan has just discussed is one in which I have been deeply interested, particularly from the standpoint of the possible development of an uncompensated alkalosis. The use of alkali in the treatment of gastric ulcer is a topic that deserves very careful study from the standpoint of blood analysis, and Dr. Jordan is to be congratulated in undertaking it. I believe it would be helpful, if she would continue and extend the study. In conditions of alkalosis it is unsafe to rely solely on the blood bicarbonate. As Dr. Van Slyke has pointed out, there are nine possible variations of the acid-base balance, depending on the levels of three interdependent variables. It is necessary to know at least two of these variables, for example, the bicarbonate and p_H, to obtain accurate information regarding the acid-base balance. The carbon dioxide of the blood alone is a much less reliable index of alkalosis than of acidosis. It is probably perfectly true that the great majority of subjects do not develop alkalosis as a result of receiving sodium bicarbonate, but I do know that some patients do. Two years ago I published a paper in THE JOURNAL in collaboration with Drs. Kast and Schmitz in which we reported twenty cases of uncompensated alkalosis. In half of the cases the alkalosis was due to bicarbonate administration. It is not possible to say whether or not there is an alkalosis unless one knows what the p_H is. I recall a case of duodenal ulcer treated with alkalis in which there was a definitely uncompensated alkalosis (p_H of 7.52) with a carbon dioxide of 56. Definite clinical symptoms of alkalosis are usually present in cases of this sort, but it obviously is unsafe to rely on the carbon dioxide combining power alone as an index of the alkalosis. If one is to draw definite conclusions, information regarding the hydrogen ion concentration of the blood must also be available.

DR. JOHN A. LICHTY, Clifton Springs, N. Y.: I should like to ask Dr. Jordan how she explains the excessive amount of thirst which these patients have who take the alkalis. Often in these cases belladonna or atropine is also administered at the same time, and the inference usually is that the belladonna is the cause; but, on withdrawal of the belladonna, the thirst continues. I have no suggestion to make in discussing this paper, but in the treatment of the gastric case, the patient who has a hypochlohydria or the one who has an achlorhydria I do not believe it is altogether a chemical problem. A patient with excessive acidity of the stomach, decided hyperchlorhydria, may not bear the alkali well, even though very small doses are given. The mucous membrane does not seem to bear the substance, and alkalis must be discontinued or diminished. Particularly have I noticed this in cases of pernicious anemia, in which one would expect the stomach to be simply waiting for hydrochloric acid in large doses, such as were suggested yesterday in Dr. Barker's paper on pernicious anemia, and yet in spite of the persistence of the achylia, hydrochloric acid in the smallest doses is not borne well. It seems to be either an idiosyncrasy or there is a local reaction which takes place which I do not believe is altogether accounted for in Dr. Jordan's paper.

DR. SARA M. JORDAN, Boston: In answer to Dr. Lichty's question, I can only state that in these cases no belladonna was used. I cannot explain the excessive dryness that has invariably preceded the other symptoms.

Localization of Lesions of Nervous System.—Lesions of the nervous system often present difficult problems of localization, for the brain and spinal cord are wholly out of reach of direct examination. Yet by making use of the results of experimental physiology, and the teachings of morbid anatomy, it is usually possible to make a correct diagnosis of the seat and nature of a cerebral or spinal lesion; just as a man who is thoroughly conversant with the telephone system may, by comparison of observations made in several branch offices, diagnose accurately the place, and form a shrewd notion of the cause, of an interruption in a central office which he cannot visit.—Garrod, Archibald: *Lancet* **2**:736 (Oct. 9) 1926.

THE AQUEOUS HUMOR

A CRITICAL AND EXPERIMENTAL STUDY *

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In the last sixty years, considerable has been written on the mechanism of production of the intra-ocular fluids. The experimental evidence discloses many discrepancies which must be cleared away before the whole situation can be understood. Those who have studied the subject are still far from an agreement as to the mode of formation of the intra-ocular fluid. It is therefore desirable that the problem be reinvestigated. This paper deals with changes in the composition of the aqueous humor due to physiologic and chemical alterations of the mechanism of production.

It was assumed by Leber,[1] Niesnamoff [2] and others that the intra-ocular fluid might be formed from the blood vessels of the ciliary body by a process of filtration determined by a difference of pressure between the blood and the fluid outside the vessels. Leber taught that the aqueous humor was almost entirely secreted by the ciliary body and that the ciliary processes were especially rich in blood vessels and therefore well adapted for a secretory function. There was a continual stream being formed, and it passed for the most part forward through the pupil into the anterior chamber and thence into the system of the anterior ciliary veins. Henderson and Starling [3] tended to support the filtration theory of Leber. They believed that there was probably always a difference between the intercapillary pressure and intra-ocular pressure which was sufficient to account for the production of the intra-ocular fluid, without assuming any active intervention on the part of the cells of the capillary walls or the ciliary process.

Seidel,[4] who has contributed considerable to the ophthalmic literature supporting in part the hypothesis of Leber, contended that the ciliary body secreted the aqueous humor in glandular fashion. He tried to prove this by showing that physostigmine (eserine) and pilocarpine when dropped into the culdesac brought about an increase of protein in the fluid. Wessely [5] also found that physostigmine did the same but he thought that it was due to a hyperemia of the ciliary vessels. This point was investigated also by Adler and Landis,[6] but they could not support Seidel's contention of true secretory activity of the ciliary body. Kumagai [7] studied the effects of physostigmine and pilocarpine on intra-ocular pressure and the amount of albumin in the aqueous humor. He found that under the influence of physostigmine and pilocarpine the protein content increased to from 0.08 to 0.15 per cent. The increase began from twenty to twenty-five minutes after the instillation and reached its maximum in one-half hour, after which the protein gradually receded and became normal in five hours. Pilocarpine had much the same action as physostigmine, except that it was less pronounced. Mawas [8] found that pilocarpine favored the passage from the blood to the aqueous humor of substances not normally found in the latter, and that the increased pressure and protein content which he observed was due to the fact that the pupil was contracted and the tissue of the iris was stretched; the subsequent decrease in pressure was due to the anatomic change at the angle between the anterior and posterior chambers.

Ehrlich [9] noticed after an injection of fluorescein intravenously that a green line was present in the anterior chamber and the colored fluid passed down vertically from the upper part of the iris over the pupil; but none of this green fluid seemed to come through the pupillary area, so he assumed that the aqueous was secreted from the anterior surface of the iris. Hamburger [10] attempted to support Ehrlich's view by showing that if a small quantity of fluorescein was injected into the posterior chamber, considerable time passed before it entered the anterior chamber by way of the pupil. He was not alone in the contention that the iris was the principal source of the aqueous humor. Nakamara, Mukai and Kosaki [11] concluded from their experimental investigation that normally the aqueous humor of the anterior chamber was secreted from the anterior surface of the iris, and the fluid in the posterior chamber from the posterior layer of the iris and ciliary body. After certain forms of irritation, the aqueous humor passed through the pupil from the posterior chamber into the anterior chamber.

To substantiate Hamburger's idea that the anterior and posterior chambers were a closed system and that the aqueous was merely a cellular secretion which was slowly formed according to the demand of the surrounding tissues, Ulbrich,[12] Stock [13] and Winselman [14] showed by clinical observation that the aqueous did not filter away.

Recently, Hamburger [15] abandoned the idea that the iris was the principal source of the aqueous. He found that there was no transudation from the ciliary body as Leber and his school taught, and that the chief path of removal from the eye was not the canal of Schlemm but the whole vascular network of the iris. To substantiate this, he showed that lymph vessels could be demonstrated in the iris, cornea and posterior chamber by a method of Magnus and Stubel, which rendered visible the vessels by filling them with peroxide. Seidel, however, was not in accord with this. Hamburger also advanced another argument against the filtration theory by pointing out the absence of any nutritional derangement in consequence of abnormally low pressure, such as occurred with foreign bodies, iritis and parenchymatous keratitis. He did not deny that there were currents present in the anterior chamber, for he believed them to be heat currents, such as described by Türk.[16]

By means of oblique illumination with a Nernst lamp, Berg [17] was able to discern a definite current in

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* The expense of this experimentation was defrayed in part by a grant from the Committee on Scientific Research of the American Medical Association.

* Read before the Section on Ophthalmology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

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12. Ulbrich, H.: Klin. Monatsbl. f. Augenh. **47** (pt. 2) 602, 1909.
13. Stock, W.: Klin. Monatsbl. f. Augenh. **47** (pt. 2) 600, 1909.
14. Winselman, G.: Klin. Monatsbl. f. Augenh. **47** (pt. 2) 203, 1909.
15. Hamburger, C.: Klin. Monatsbl. f. Augenh. **70**: 649, 1923; **72**: 206, 1924.
16. Türk, S.: Klin. Monatsbl. f. Augenh. **49** (pt. 1) 300, 1911.
17. Berg: Klin. Monatsbl. f. Augenh. **55**: 61, 1915.

the anterior chamber. This was best noted in patients after cataract extraction and in other instances when there were fine opacities in the aqueous, as in iritis and iridocyclitis. This current was attributed to the differences in temperature in the anterior chamber. The higher temperature near the iris causes an upward flow in the posterior portion of the anterior chamber, with a downward current near the cornea due to a lower temperature.

Since Deutschmann's [18] investigations of the regeneration of aqueous in the cadaver, it has been taught that the vitreous plays a part in forming the fluid in the anterior chamber. Wessely [19] made a very exhaustive study of the intra-ocular fluids in birds and found it similar to that in mammals. There was a free communication between the vitreous and the aqueous chambers in the bird, and the latter took part in the renewal of the aqueous after corneal puncture. The anterior chamber was almost immediately reestablished. The aqueous which was secreted by the ciliary body contained protein, while that which came from the anterior surface of the iris contained more diffusible substance, but little, if any, protein. He showed by fluorescein experiments that after puncture of the cornea the secretion of aqueous from the ciliary body was much increased. He assumed that the fluid was formed through a transudation process whereby some of the components of the serum were excluded from the optic media of the eye, and that the function of the ocular fluids was primarily optical and only secondarily nutrient.

Analyzing in detail the experiments made to determine the secretion of the aqueous humor and passing criticism on all theories advanced as the origin of the fluid aqueous, Magitot [20] arrived at the conclusion that the experiments so far conducted did not sufficiently reproduce normal conditions and that conclusions consequently did not apply to the normal aqueous. The renewal of the fluid was very slow and there was no true current in the anterior chamber of the eye. When the anterior chamber was emptied by puncture, the fluid filling the chamber consisted of serum transuded from the capillaries, with an admixture of normal aqueous humor which was squeezed out of the meshes of the vitreous body. From an embryologic study, he found that during the third and fifth month of embryonic life the first aqueous was secreted by special neuroglial cells which accompanied the hyaloid vessels. The fluid thus formed filled the meshes of the vitreous body, the anterior and posterior chambers. The fibrillary network of the vitreous was nothing but retinal neuroglia. After the cells had disappeared, the aqueous in later life was only very slowly absorbed and the deficiency was replaced by products of the neuroglial cells, the cells of the ora serrata and the clear cells of the ciliary body. Primarily, aqueous humor was a true secretion in man and had a triple rôle: optic, neuroprotector, and lens-conserving. The normal aqueous humor resembled the cerebrospinal fluid; it constituted an excellent medium for the storage of energy. Magitot found that the aqueous was stagnant, devoid of any current, but probably subject to slow absorption, and replaced from the neuroglial cells. Aqueous humor lost by tapping was replaced by serum transuded from the capillaries, in addition to the normal aqueous humor expressed by the meshwork of the vitreous. This serum in turn was slowly eliminated in proportion as the neuroglial dialysis reconstructed a normal aqueous humor.

Magitot and Mestrezat [21] found that the aqueous humor was chemically very much alike in domestic animals and man, and an analysis of the aqueous humor from the eye of the horse showed that it resembled very much the cerebrospinal fluid. They confirmed the statement of previous writers that the secondary aqueous differed in composition from the original. There was an active transudation in the capillaries of the anterior segment of the eyeball, which followed the sudden decompression caused by the evacuation of the fluid. The negative pressure distended the vascular walls, and the exudate filtered through the cellular layers and entered the anterior chamber. Regeneration of the aqueous took place rapidly, beginning within twenty minutes after puncture, and normal composition was restored in eight or ten hours. The experiments were carried out on six individuals with various stages of optic atrophy. The greatest amount of albumin was formed from forty to forty-five minutes after a puncture of the anterior chamber. Magitot and Dautrevaux studied two cases, in one of which there was a complete seclusion of the pupil, and in the other, a congenital aniridia. In the case of seclusion of the pupil, two punctures were made, one in front and one behind the iris, for the purpose of comparing the content of the posterior with that of the anterior chamber. The anterior chamber, after refilling, showed a higher fluid content than the posterior chamber. If before emptying the anterior chamber a preliminary subconjunctival injection was given to induce hyperemia, it was found that the fluid from the posterior chamber contained twice as much protein as that from the anterior chamber. In the case of congenital aniridia, the fluid withdrawn at the second puncture had a high protein content, and the amount of protein found was slightly larger than from a second puncture of a normal eye. These findings appeared to confirm the statement that in the formation of the aqueous humor the iris as well as the ciliary body took part and the serum flooding the anterior chamber after puncture was chiefly produced by the ciliary body.

After ligating the carotid in dogs, rabbits and cats, Magitot and Dautrevaux [22] found that the first aqueous obtained by puncture showed a slight diminution of protein and chloride, while the second aqueous humor generally showed the protein increased. From the eye on the side of the ligation, the second aqueous contained much less protein, especially from thirty-five to sixty minutes after the first puncture. A fall in the proportion of protein was a constant phenomenon in the aqueous humor in the eye of the ligated side although the amount varied.

Freytag [23] studied the index of refraction in cats and rabbits and found that it was practically the same for the aqueous and vitreous humor and did not change with age. He thought that the variations of index ascribed to age may have been due to the length of time elapsing after death before the fluid was examined. Lowenstein and Kubik [24] published a description of their work in estimating the index of refraction of the aqueous humor in rabbits under normal conditions and also after the use of ethylmorphine hydrochloride

18. Deutschmann: Arch. f. Ophth. (Graefe's) **25**: 99, 1879.
19. Wessely, Karl: Arch. f. Augenh. **50**: 129, 1900.
20. Magitot, A. P.: Ann. d'ocul. **154**, 1917; Arch. Ophth. **52**: 1 (Jan.) 1923.
21. Magitot, A., and Mestrezat, W.: Ann. d'ocul. **159**: 401, 1922; **158**: 1, 1921.
22. Magitot and Dautrevaux: Ann. d'ocul. **160**: 147, 1923; **159**: 907, 1922.
23. Freytag, G.: Arch. f. Bergleichen den Ophth. **1**: 61, 1909.
24. Lowenstein and Kubik: Arch. f. Augenh. **89**: 199, 1915.

(dionin), massage, diathermy, artificially produced hyperemia, subconjunctival injection of saline solution, intravenous injections of 10 per cent solution of dextrose, and removal of vitreous and aqueous humors. They concluded that the index of refraction of normal aqueous humor in rabbits at a temperature of 17.5 C. is between 1.335385 and 1.335418. Prolonged instillation of cocaine had no effect on the index; a brief forward luxation of the globe was also without its influence. Introduction of powdered ethylmorphine hydrochloride raised the index of refraction. Subconjunctival injection of physiologic sodium chloride solution and of distilled water caused a great rise in the refractive index. Massage of the globe did not lower the ocular tension but led to a marked rise in the refractive index. Fomentations produced a great effect; diathermy yielded results of considerable duration; congestive hyperemia produced a rise in the index. Intravenous injection of 10 per cent dextrose led to no increase nor did injection of distilled water or normal rabbit serum. Alterations in blood pressure had no determinable effect; loss of the vitreous to the extent of 1.2 cc. produced a rise in the index still apparent eight days later.

Hagen [25] examined with the refractometer the regenerated aqueous humor obtained by puncture of the anterior chambers of human eyes destined for enucleation and some others shortly after trephining for glaucoma and cataract extraction. He found that the regenerated human aqueous humor showed no higher percentage of protein than the normal aqueous humor and did not contain fibrin. This was entirely at variance with the findings from the eyes of rabbits, in which the aqueous humor after the first puncture contained 4 per cent and after repeated punctures, e. g. fifth, 5 per cent protein and fibrin so that it coagulated almost instantaneously. Also in the dead, especially young persons, the anterior chamber was refilled within a few minutes after puncture. Hagen found the fluid in the restored chamber no different from the first aqueous and the vitreous humors. In the same way as in the human eye shortly after death, the vitreous fluid filtered after paracentesis of the anterior chamber of the living human eye through the zonula, and filled the anterior chamber to equalize the difference of pressure. Hagen [26] explained the impermeability of the ciliary body of the human eye to fluorescein by the subordinate part which the ciliary body played in the immediate restitution of the aqueous humor. He did not deny that finally the regeneration of the ocular fluids was a function of the ciliary body but this regeneration occurred slowly, while the anterior chamber was filled in a few minutes.

Hagen studied diseased eyes and concluded from his work that the regeneration in the diseased eyes occurred very rapidly, especially in acute iridocyclitis, and the regenerated aqueous humor showed a marked increase in protein and secretion of fibrin. The experiments demonstrated that the regeneration of the aqueous humor under pathologic conditions differed from that in normal human eyes, but was similar to that in normal eyes of animals. While in animals the regeneration took place exclusively from the ciliary body it occurred in the human eye chiefly from the iris. This forced him to regard the iris as the most important secretory organ of the aqueous humor or to acknowledge that this albuminous aqueous humor did not prove anything with regard to the physiologic conditions. Rados [27] determined the refractive index by means of an Abbe's refractometer. He rejected Seidel's and Wessely's calculations and showed by his own investigations that no protein percentage could be calculated for human physiologic aqueous humor. A determination of the protein content by precipitating with 90 per cent alcohol indicated that in normal aqueous humor in animals no albuminous substance is demonstrable. The mechanism of secretion was found to be the same in man and in animals. In animals, the puncture acted as an irritant which produced disturbance and greater permeability of the cells, but this process did not cause the same effect in the human eye.

Lowenstein [28] attempted, by measuring the viscosity changes in the second aqueous, to determine the rate at which secretion occurred after puncture of the anterior chamber of the rabbit. The viscosity of the aqueous humor became normal four hours after paracentesis. The rate was but little affected by preliminary subconjunctival injection of salt solution. Guglianetti [29] reported that Cavazzani, working with the Oswald viscosometer, found the average viscosity to be a little higher than that of water twice distilled and was increased in glaucoma; Mastro-Buono observed that it became less after standing for twenty-four hours, possibly through precipitation of proteins, and was increased after mechanical irritation, and after extirpation of the cervical sympathetic; Pignatari, making repeated punctures of the anterior chamber, found that the first and second was followed by an increase of viscosity of the aqueous humor, but subsequent paracentesis showed a diminution. Guglianetti [30] studied the viscosity of the aqueous humor in rabbits' eyes and found that normal aqueous humor was almost of the same consistency as distilled water. Eight hours after paracentesis the aqueous coagulated spontaneously; after sixteen hours the viscosity was increased; and after twenty-four hours the aqueous regained its normal characteristics. The presence of lens substance in the anterior chamber following discission increased the viscosity of the aqueous humor; and subcutaneous injections of iodine preparations, in nontoxic doses, did not change the viscosity of the aqueous humor.

Using various forms of apparatus, many observers attempted to measure the fluid formed in the anterior chamber. They found that the amount varied when the normal physical and chemical nature of the eyeball changed. The results of the various procedures did not measure the total rate of formation of intra-ocular fluid, since some aqueous humor may have escaped by way of the anterior ciliary venous system. Seidel, Henderson and Starling, Adler and others have shown that if the pressure in the anterior chamber was kept constant, the rate of escape from the anterior chamber was constant. By properly controlled experimentation they showed that after stimulation of the cervical sympathetic or the superior cervical ganglion after Tenon's capsule was cut, a decrease in the rate of formation of fluid was observed. They believed that normally the intra-ocular vessels were kept in a somewhat tonically contracted state by the action of the sympathetic system.

It is therefore an undisputed fact that, in animals, the withdrawal of the aqueous humor leads to a change in the physical and chemical properties of the second fluid which fills the anterior and posterior chamber. From a review of the literature, I quite agree with

25. Hagen, S.: Klin. Monatsbl. f. Augenh. **64**: 187, 1920.
26. Hagen, S.: Klin. Monatsbl. f. Augenh. **66**: 493, 1921.
27. Rados, A.: Arch. f. Ophth. (Graefe's) **109**: 342, 1922.
28. Lowenstein, A.: Arch. f. Augenh. **70**: 26, 1911.
29. Guglianetti, L.: Arch. di Ottal. **26**: 53,1 1919.
30. Guglianetti, L.: Arch. di Ottal. **26**: 109, 1919.

Parson [31] that the formation of the normal aqueous humor follows the physical laws of filtration, as suggested by Adamük,[32] Jesner,[33] Niesnamoff, Leber and others, and is not a true physiologic secretion as alleged by Nicati,[34] Treacher Collins [35] and Seidel; for no experiment has yet been reported which definitely proves that the ciliary body is a gland and acts so physiologically; nor does the normal aqueous humor form in the manner described by Hamburger and Magitot. With the adaptation of newer methods used by biochemists and physiologists in their respective fields, it will perhaps be demonstrated also that the membrane of the ciliary body and that of the iris is not an inert system obeying the simple process of filtration, but that the cells have certain metabolic functions which are far reaching. It is my opinion that their physiologic derangement is responsible for abiotrophy in the interior of the eye. Our future work is based on this idea.

EXPERIMENTAL

Many methods have been devised to procure aqueous humor from the anterior chamber of the eye. The method which seems to give the most satisfactory results is that of entering the sclerocorneal junction at the upper outer quadrant with a sharp iridium-platinum needle about 1 inch long, having a 24 gage bore and attached to a 1 cc. record Luer syringe. The lids are separated by a specially prepared spring wire speculum and the eyeball held with fixation forceps near the puncture of the cornea. The eyeball and culdesac are thoroughly cleaned with a spray of sterile warm water. The excess of fluid from the culdesac and area of operation is mopped by a dry sterile cotton swab. When entering the eyeball, the needle is pushed into the anterior chamber slowly and firmly, so that it does not come in contact with the iris or the posterior part of the cornea. If the iris is wounded, the refractive index of the aqueous humor is altered. The fluid must be withdrawn slowly and at a uniform rate or the reading will be fallacious. The anterior chamber is completely evacuated at every puncture. It is necessary at times to leave the fluid in the syringe barrel for varying periods. The index of refraction of this fluid does not vary from the original when it is examined during an interval of two hours.

In these experiments the tension of the eyeball is taken whenever possible with a Schiötz tonometer, and recorded by means of a fraction in which the numerator is the reading on the scale and the denominator the weight used. This method of record is adopted because of the various normals in terms of millimeters of mercury suggested by experimenters. The Zeiss-Pulfrich refractometer is employed for the determination of the refractive index. The temperature is 17.5 C. and the final reading is made after the dipping end of the instrument is in the bath ten minutes. The removable parts of the refractometer are washed in clear distilled water several times and thoroughly dried before using.

In order to secure many specimens of normal aqueous humor, the fluid is taken from animals that are being experimented on for other purposes. From a total of 146 normal dogs' eyes, the average refractive index is from 1.33505 to 1.33551.

Most of my work is done under light morphine narcosis, supplemented by local application of 5 per cent cocaine hydrochlorate. I find that an animal receiving 1 grain (0.065 Gm.) of morphine sulphate for every 4 kilograms of body weight gives a good narcosis. I tried to use amytal or paraldehyde and found each unsatisfactory in this work because of the length of time necessary to procure narcosis.

It is interesting to note that the refractive index of the first aqueous humor does not vary from the normal when the fluid is removed from the anterior chamber at varying intervals after ether anesthesia is used. The average index of the aqueous humor is almost the same in the two eyes and is within the normal range. Under ether anesthesia and cocaine the same findings are noticed; but when morphine narcosis and cocaine are used, the index of the aqueous humor in the second eye is found to be slightly higher than the first eye in eight of the twenty-eight which are examined. There must be some mechanism disturbed when the work is done under morphine narcosis particularly in the rabbit. It makes no difference which eye is punctured first. After the first puncture there is no regularity about the difference between the two eyes as may be seen from tables 1 and 2. The aqueous humors from sixteen normal rabbit eyes give a refractive reading of from 1.33505 to 1.33567.

TABLE 1.—*Refractive Index of Normal Aqueous Humor Removed at Varying Intervals of Anesthesia*

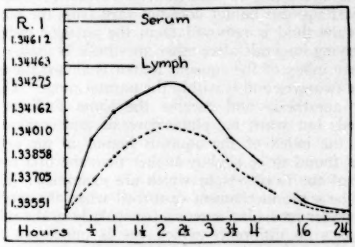
Dog No.	Time	Eye	Tension	Anesthesia	Refractive Index
1	Early	Right.....	5/5.5	Ether	1.33521
		Left.....	4/5.5		1.33509
12	1 hour	Left.....	5/5.5	Ether	1.33521
		Right.....	—		1.33501
28	2 hours	Right.....	5/5.5	Ether	1.33509
		Left.....	6/5.5		1.33540
18	3 hours	Right.....	6/5.5	Ether	1.33513
		Left.....	7/5.5		1.33536
8	1 hour	Right.....	4/5.5	Ether, morphine, cocaine	1.33521
		Left.....	6/5.5		1.33509
24	.....	Control.....	6/5.5	Morphine, cocaine	1.33513
		Left.....	8/5.5		1.33547
17	.....	Control.....	8/5.5	Morphine, cocaine	1.33517
		Right.....	7/5.5		1.33543

To determine what effect repeated puncturing has on the composition of the aqueous humor under ether anesthesia and morphine narcosis ten dogs are used. They are divided into three groups four, four and two. The first is given ether anesthesia, the second morphine sulphate and cocaine locally, and the last, general and local anesthesia. Two animals of the first and second groups have their anterior chamber punctured every half hour, and two every hour. One of the third group is given ether anesthesia and also has cocaine added to the culdesac to ascertain whether it has any effect on the permeability of corneal and conjunctival tissue. Its anterior chamber is emptied every half hour. The other animal in this group has a cannula inserted and two or three drops removed every ten minutes from the chamber. Additional observations are made on three animals which have their anterior chambers emptied every three hours, three every two hours, one every four hours and two every twenty-four hours.

From table 2, I have constructed a graph in which the time is represented by the abscissa and the refractive index by the ordinate. The broken line represents the hour curve and the unbroken line the half hour curve. The refractive index is found to be higher in the second fluid which is formed in the anterior cham-

31. Parson, J. H.: Pathology of the Eye. **8** (pt. 1) 1906.
32. Adamük: Sitzgsber. d. Wiener Akad. **59**, 1869.
33. Jesner: Arch. f. d. ges. Physiol. (Pflüger's) **23**: 14, 1880.
34. Nicati: Arch. d'Ophth. **11**: 24, 1891.
35. Collins, Treacher. Tr. Ophth. Soc. **11**: 55, 1891.

ber. The readings of the half hour intervals are higher than those of the longer intervals, finally approaching the refractive index of thoracic duct lymph and blood serum. From table 2 it may be seen that the refractive index of the fluid in the three and four hour intervals is lower than the fluid taken at the first and second



Average refractive index of aqueous humor removed from anterior chamber of dogs' eyes at varying intervals: solid line, half-hour intervals; broken line, hourly intervals.

vitreous fluid is removed with difficulty by a Luer record syringe with a sharp 18 gage needle. The examination of three eyes immediately after the removal of the vitreous gives an upper average normal reading of 1.33551. In three control eyes the aqueous humor is normal. The second and third half hour punctures do not vary from those of the previous experiments. In the fourth animal both eyes have 0.6 cc. of vitreous fluid removed, but in the left eye 0.3 cc. of 1:1,000 epinephrine is injected. The second aqueous from this eye gives a lower refractive index, but one-half hour later both eyes give approximately the same reading, as may be seen in table 3.

I am inclined to deduce from this observation that the change in the internal ocular pressure causes an altered permeability of the capillary walls of the ciliary processes and iris, with an increase of crystalloids and certain colloids in the normal aqueous. The injection of epinephrine lowers the refractive index of the fluid, and this finding agrees with that of other investigators, particularly Wessely.

The interference with the circulation of the eye by ligating the carotid artery on one side proves to be

TABLE 2.—*Removal of Aqueous Humor at Varying Intervals*

Dog No.	Anesthesia	Eye	Tension	Normal	½ Hour	1 Hour	1½ Hours	2 Hours	2½ Hours	3 Hours	3½ Hours	4 Hours	16 Hours	24 Hours	48 Hours	72 Hours	Comment
10	Ether	Right	8/5.5	1.33513	1.34052	1.34222	1.34361	1.34335	1.34307	1.34071	1.34152	.....	.....	1.33594	.....	1.33513	Punctures every ½ hour; film formed after second puncture
		Left	6/5.5	1.33543	1.34092	1.34241	1.34279	1.34294	1.34241	1.34199	1.34062	.....	.....	1.33921	.....	1.33599	
9	Morphine, cocaine	Right	6/5.5	1.33517	1.33980	1.34071	1.34214	1.34350	1.34248	1.34139	1.34203	.....	.....	.....	.....	1.33543	Blood in fifth puncture left eye
		Left	5/5.5	1.33594	1.33967	1.34154	1.34166	1.34582	1.34279	.....	.....	.....	.....	.....	.....	1.33555	
2	Ether	Right	3/5.5	1.33524	.....	1.33697	.....	1.33862	.....	1.33873	.....	1.33881	.....	.....	1.33521	.....	Film formed after third puncture
		Left	6/5.5	1.33540	.....	1.33747	.....	1.33835	.....	1.33824	.....	1.33862	.....	.....	1.33543	.....	
202	Morphine, cocaine	Right	8/5.5	1.33509	.....	1.33743	.....	1.33911	.....	1.33917	.....	1.33888	1.33504	.....	1.33571	1.33536	Blood in fifth puncture
		Left	6/5.5	1.33528	.....	1.33709	.....	1.33881	.....	1.33972	.....	1.34086	.....	.....	1.33560	1.33517	
91	Morphine, cocaine	Right	8/5.5	1.33501	.....	.....	.....	.....	.....	1.33873	.....	.....	.....	1.33567	.....	.....	
		Left	6/5.5	1.33509	.....	.....	.....	.....	.....	1.33824	.....	.....	.....	1.33536	.....	.....	
96	Ether, morphine, cocaine	Right	7/5.5	1.33528	1.34082	1.33991	.....	1.33904	.....	.....	.....	1.33739	.....	1.33505	.....	.....	No difference in refractive index
		Left	6/5.5	1.33563	1.34124	1.34060	.....	1.33990	.....	.....	.....	1.33743	.....	1.33567	.....	.....	
103	Ether, morphine, cocaine	Right	4/5.5	1.33509	1.33972	1.33957	.....	1.34078	.....	.....	.....	.....	.....	1.33536	1.33524	1.33551	Return to normal in 24 hours
		Left	8/5.5	1.33590	1.33888	1.33972	.....	1.34010	.....	.....	.....	.....	.....	1.33553	1.33517	1.33509	
216	Morphine, cocaine	Right	6/5.5	1.33519	.....	.....	.....	1.33773	.....	.....	.....	.....	.....	1.33551	1.33505	1.33555	Return to normal in 24 hours
		Left	4/5.5	1.33542	.....	.....	.....	1.33720	.....	.....	.....	.....	.....	1.33560	1.33521	1.33506	
203	Morphine, cocaine	Right	5/5.5	1.33517	.....	.....	.....	.....	.....	.....	.....	1.33938	.....	1.33605	1.33543	.....	Return to normal in 24 hours
		Left	.....	1.33536	.....	.....	.....	.....	.....	.....	.....	1.34021	.....	1.33532	1.33551	.....	
62	Ether	Right	4/5.5	1.33509	.....	.....	.....	.....	.....	.....	.....	1.33690	.....	1.33686	1.33547	.....	Return to normal in 24 hours
		Left	5/5.5	1.33528	.....	.....	.....	.....	.....	.....	.....	1.33747	.....	1.33543	1.33543	.....	

hour intervals. In twenty-four hours, the refractive index becomes normal again. When the anterior chamber is evacuated every twenty-four hours, the refractive index remains within normal limits. When the iris is injured or blood finds its way into the chamber, the refractive index is much higher than is ordinarily found at this interval. The refractive index taken at definite intervals is by no means identical. The figures in the tables represent averages.

It is noticed that usually after the second puncture a film forms in the chamber, and, under magnification, is confined almost exclusively to the pupillary area. The fluid in the record syringe after the second puncture shows a transparent, gelatinous, stringy mass which interferes at times with the removal of fluid from the syringe to the prism of the refractometer. The hyphemia caused by trauma in several of the eyes disappears almost in twenty-four hours as a rule.

In order to find out what difference the removal of some of the vitreous might have on the formation of the aqueous humor and its refractive index, 0.5 cc. of

TABLE 3.—*Partial Removal of Vitreous and Its Effect on the Index of Refraction of the Aqueous Humor*

Dog No.	Anesthesia	Eye	Tension	Immediate Fluid	½ Hour	1 Hour	1½ Hours	Comment
15	Ether	Control	8/5.5	1.33529	1.33987	1.34139	1.34200	0.6 cc. of vitreous removed
			7/5.5	1.33571	1.33942	1.34056	1.34207	
62	Ether	Control	9/5.5	1.33582	1.34071	1.34207	1.34279	0.6 cc. of vitreous removed
			7/5.5	1.33567	1.34086	1.34199	1.34260	
124	Ether	Control	4/5.5	1.33517	1.33896	1.34105	1.34207	0.6 cc. of vitreous removed
			6/5.5	1.33547	1.34067	1.34166	1.34279	
119	Ether	Control	8/5.5	1.33513	1.33995	1.33987	1.34139	But 0.3 cc. of epinephrine injected
			9/5.5	1.33528	1.33743	1.34010	1.34166	

interesting. The aqueous removed immediately after ligation is found to be normal as expected, but the refill in the operated side gives a higher reading when removed one-half hour later. The third puncture one-half hour afterward gives approximately the same reading in the two eyes. This finding, together with several dissections which I made on the dog, proves that collateral circulation in the dog is good. The eye is supplied by the ophthalmic artery, a branch of the internal max-

illary arising from the external carotid, and by an anastomotic branch of the internal carotid.

Table 4 shows the action of 5 drops of pilocarpine hydrochlorate, 2 per cent; atropine sulphate, 2 per cent; homatropine hydrochlorate, 4 per cent, and epinephrine chloride, 1:1,000, on the refractive index. These drugs are instilled in the culdesac of the eye before the local or general anesthetic is administered. The aqueous humor is removed from the anterior chamber only after the physiologic action of the drug is registered. The findings corroborate those of Adler, Seidel and Wessely. Physostigmine gives a higher refractive index than normal; pilocarpine, one slightly above normal. Atropine and homatropine do not increase or decrease the refractive index. It is difficult to give a precise explanation of the cause of the difference.

TABLE 4.—*Averages of Refractive Index Taken of Aqueous Humor After Physiologic Action of Drug Was Noticed*

No. of Dogs	Tension	Eye	First Fluid	1 Hour Later	Comment
5	6/5.5 5/5.5	Control	1.33541 1.33528	1.33758 1.33628	Atropine sulphate, 2%, 5 drops approximately 2 hours before action
4	5/5.5 4/5.5	Control	1.33524 1.33559	1.33789 1.33915	Pilocarpine hydrochlorate, 2%, 5 drops after 1¼ hours before action
5	4/5.5 5/5.5	Control	1.33528 1.33578	1.33751 1.33934	Physostigmine salicylate, 5 drops after 1¼ hours before action
4	.....	Control	1.33517 1.33509	1.33833 1.33854	Epinephrine, 1:1,000, 5 drops 1 hour before action

The effects of irritation of the eye on the composition of the aqueous by sodium chloride solution of varying strengths, mercuric oxycyanide, 1 per cent, and ethylmorphine hydrochloride, 10 per cent, may be seen in table 5. Under general or local anesthesia, 0.75 cc. of fresh physiologic sodium chloride solution and 5 and 10 per cent solutions injected subconjunctivally give no appreciable change in the refractive index of the aqueous humor. This finding does not agree with observations made by Wessely, who finds an increase of proteins after a 5 per cent injection of sodium chloride solution. The conjunctiva becomes very edematous and lasts for several hours after this injection. I waited for two, three and four hours before puncturing the anterior chamber for the aqueous humor, but the findings are the same. Ethylmorphine hydrochloride, 10 per cent, dropped into the culdesac, gives considerable edema of the conjunctiva, and when it seems as though the action is at its height, which is about forty-five minutes, the aqueous humor is examined and found to be normal. I repeated this experiment in four other eyes, waiting from one hour to three hours; but the refractive index is found to be normal. Mercuric oxycyanide, 1 per cent, injected subconjunctivally, has no effect on the refractive index of the aqueous humor. Evidently, these supposedly lymphagogic chemicals have no effect on the change of the composition of the aqueous humor, and hence do not interfere with the permeability of the blood vessels.

Mechanical irritation caused by massaging the eyeball and scratching the cornea do not change the composition of the aqueous. I had the opportunity of examining some pathologic eyes, two having superficial keratitis, two interstitial keratitis, one an ulceration of the cornea due to experimental injury of the trigeminal nerve, and one eye which was diagnosed secondary glaucoma because of dislocation of the lens into the anterior chamber.

From table 6 it can be plainly seen that corneal lesions did not change the composition of the aqueous humor. I was somewhat surprised to find the refractive index of the aqueous humor in the two cases of interstitial keratitis normal. The high refractive index in the case of glaucoma was probably due to internal irritation of the ciliary body and the iris.

In all, twenty-one eyes were examined at various intervals after death. The aqueous humor up to ten hours after death gave a reading within normal limits,

TABLE 5.—*Action of Subconjunctival Injections on Index of Refraction: Injection Before Anesthesia Started*

Dog No.	Anesthesia	Eye	Tension	1 Hour	2 Hours	3 Hours	4 Hours	Comment
8	Morphine, cocaine	Control	5/5.5	1.33543 1.33513	1.33843 1.33781	.....	.....	Physiologic sodium chloride solution
82	Ether	Control	.....	.....	1.33513 1.33506	1.33768 1.33795	.....	5% saline solution; marked edema of conjunctiva
14	Ether	Control	.....	.....	.....	1.33543 1.33513	1.33758 1.33812	5% saline solution; marked edema of conjunctiva
13	Morphine, cocaine	Control	.....	.....	.....	.....	1.33528 1.33521	5% saline solution; marked edema of conjunctiva
101	Ether	Control	.....	.....	.....	1.33543 1.33517	....	10% saline solution; marked edema of conjunctiva
104	Morphine, cocaine	Control	.....	.....	.....	.....	1.33543 1.33551	10% ethylmorphine hydrochloride; marked edema of conjunctiva
92	Ether	Control	.....	1.33521 1.33509	1.33812 1.33768	....	....	10% ethylmorphine hydrochloride; marked edema of conjunctiva in forty-five minutes
60	Morphine, cocaine	Control	.....	.....	1.33528 1.33513	....	1.33904 1.33915	10% ethylmorphine hydrochloride; marked edema of conjunctiva in forty minutes
1	Morphine, cocaine	Control	.....	.....	1.33509 1.33513	1.33900 1.33839	.....	1% mercuric oxycyanide; marked edema of conjunctiva
5	Ether	Control	.....	1.33543 1.33551	1.33866 1.33843	.....	.....	1% mercuric oxycyanide; marked edema of conjunctiva

Adler by his experimentation shows that physostigmine must act as a vasodilator and atropine as a vasoconstrictor. Others try to explain this as the change in the filtration spaces at the angle of the anterior chamber by the contraction and dilatation of the pupil. Epinephrine, as noted above, lowers the refractive index in several of the eyes in which a second puncture was made; or rather the reading on the epinephrinized eye is lower than the control eye. The action of these drugs clearly suggests that they affect the permeability of the capillaries of the anterior uveal tract. The question arises whether the results are due to a vasomotor change or to cellular changes. This problem needs further investigation. According to Lee,[36] capillaries act differently in various parts of the body. Hence these drugs must be tried out on the vessels of the eye.

36. Lee, F. C.: Am. J. Physiol. 74: 326, 1925.

whereas that after that interval gave an index above normal. It was noticed that the anterior chamber refilled in the dead eye and the refractive index of the fluid was higher than normal.

SUMMARY

There is no doubt that the composition of the second fluid which fills the anterior chamber of the eye after removal of its content is different from the normal aqueous humor. The physical properties undergo a marked change. The refractive index and the viscosity are greater than normal; the contents of the anterior chamber possess the power of coagulation. This phenomenon is absent from the normal fluid. There is no evidence that the ciliary body acts as a gland and secretes the aqueous humor as a true secretion. On the contrary, the intra-ocular fluid is produced by a process of filtration; and the difference of pressure between the blood in the capillaries and the fluid in the eye is one of the main factors that determine the amount of transuded fluid. Changes in physical properties of this fluid are caused by a rapid alteration in the intra-ocular pressure after removal of fluid from the vitreous chamber or from the anterior and posterior chamber. An increase or decrease in the permeability of the capillaries of the anterior uveal tract changes the composition of the normal fluid. Changes in the permeability of the vessels may be produced by chemical or toxic substances and by stimulation and sectioning of various nerves. Mechanical irritation of the external part of the eye does not seem to affect the composition of the eye. From work in progress in our laboratory to determine the mode of secretion of the aqueous humor, we have been able to corrobrate the findings of others that iodides are found in the normal aqueous after intravenous injection. There are certain recognizable foreign substances injected into the blood stream which will not appear in the normal aqueous humor unless the permeability of the capillaries has been increased. It is our plan to ascertain whether with increased permeability some of the ocular changes, such as cataract formation and glaucoma, can be induced.

TABLE 6—*Pathologic Eyes*

Dog No.	Tension	Eye		Comment
55	6/5.5	Right	1.33513	Interstitial keratitis, left eye
		Left	1.33528	
69	.....	Right	1.33509	Interstitial keratitis, both eyes
		Left	1.33524	
72	8/5.5	Right	1.33521	Massaging right eye
	6/5.5	Left	1.33501	
22	7/5.5	Right	1.33519	Massaging right eye
	8/5.5	Left	1.33542	
	2/7.5	Right	1.34056	Secondary glaucoma, right eye
	8/7.5	Left	1.33567	
116	.....	.....	1.33532	Ulceration of left cornea
			1.33509	

CONCLUSIONS

1. The aqueous humor has a fixed refractive index.

2. In lowering the ocular tension by the removal of fluid from the vitreous chamber or the anterior and posterior chambers, the physical properties are modified so that the refractive index of the aqueous humor is increased.

3. Epinephrine decreases the permeability of the capillaries so that less crystalloid and colloid substances find their way into the aqueous humor after the normal mechanism is interfered with.

4. Pilocarpine and physostigmine increase the permeability of the capillaries so that the refractive index becomes higher than normal.

5. Injection of saline solution, mercuric oxycyanide, ethylmorphine hydrochloride or atropine does not seem to interfere with the filtration process of the aqueous humor.

6. Any method which will increase the permeability of the anterior uveal tract offers the possibility of promoting the transfer of intravenously injected drugs into the anterior chamber of the eye.

ABSTRACT OF DISCUSSION

DR. LAWRENCE POST, St. Louis: Dr. Yudkin apparently agrees with most of the experimenters that the refill of the anterior chamber after a tapping has usually a higher index of refraction than the original aqueous humor. Neame and Webster in 1923 found that the second aqueous humor after intravenous injection of arsenical compounds contained a much larger arsenic component than the first aqueous humor. They therefore advocated withdrawal of the aqueous humor immediately after the intravenous injection of arsenical compounds in interstitial keratitis, in the hope that this would bring the medicine more directly to the lesion. These results were similar to mine in working with mercurochrome-220 soluble in 1925. I found that after intravenous injection of the maximal dose of mercurochrome in a rabbit, the aqueous humor did not contain an amount of mercurochrome measurable by colorometric methods. If the aqueous humor was removed the refill was much more concentrated, averaging 1: 50,000. This, however, is too weak to be bactericidal even were the method of obtaining this concentration a desirable one. There is not entire unanimity of opinion about the results of tapping the anterior chamber. Rados believed that puncture of the anterior chamber in man acted in a different manner from the same procedure in animals. He contended that in man there was no resulting irritation and consequently no increased permeability of the cells. The exact index of refraction of the aqueous humor, as found by Dr. Yudkin, is practically the same as that found by previous authors. Its constancy in normal animals and in man throughout life is also in agreement with other observers, to mention only Freytag, who made his observations in 1909. I think we may now accept these findings as proved. The influence of pilocarpine in favoring the passage of drugs from the blood to the aqueous humor is confirmatory of the work of Mawas in 1912. The results with ethylmorphine hydrochloride and subconjunctival saline injections are at variance with those of Lowenstein and Kubik, who reported in 1915 that these drugs increased the proteins of the aqueous humor. Clinical experience indicates that these drugs do have an action on intra-ocular tissues. The difference found by these workers may be because permeability of tissues varies with the existence or nonexistence of inflammation in the eyes. Most drugs, when injected intravenously, appear earlier in inflamed eyes than in uninflamed eyes, and also remain longer in the former. Other conclusions of the author, excepting possibly the results of ligation of the carotoids, are in general in agreement with results found by other experimenters.

DR. ARNOLD KNAPP, New York: Will Dr. Yudkin be kind enough to describe, based on his experiments, the most practical method of increasing the permeability of the vessels of the eye in treating inflammations of the eye?

DR. ARTHUR M. YUDKIN, New Haven, Conn.: In reference to the work done by some observers on the continent with subconjunctival injections of saline solution, it is possible that an increased amount of protein may be present in the aqueous humor; but with my methods I find no increase of the index of refraction. As far as I have gone, I would say that pilocarpine and physostigmine alter the cells of the ciliary body and processes so that they are more permeable than normal. This process can also be accomplished by removal of the aqueous humor from the anterior chamber.

Clinical Notes, Suggestions and New Instruments

TAENIA SAGINATA IN THE GALLBLADDER*

EDWARD B. BENEDICT, M.D., BOSTON

J. B., a man, aged 74, entered the Massachusetts Eye and Ear Infirmary to be operated on for cataract of the left eye. Operation was performed for cataract, Feb. 3, 1926.

The present illness began during convalescence, ten days after the cataract operation, when the patient began complaining of occasional dull right upper quadrant pain. The pain continued for three days, becoming gradually more severe and radiating to the back and between the scapulae. The afternoon of the fourth day the pain was so severe that it doubled him up. He began vomiting, and continued to vomit practically all night. The next morning he was seen in consultation by a member of the surgical staff at the Massachusetts General Hospital. On physical examination there was very marked tenderness and spasm in the right upper quadrant, so that this whole area was rigid. As the diagnosis seemed clear, and the patient was obviously very ill, no further history was obtained at this time. The temperature was 101.2, the pulse 100, and the respirations 25. The urine was negative.

The patient was at once transferred to the Massachusetts General Hospital, and an emergency operation performed by Dr. Beth Vincent.

The preoperative diagnosis was acute cholecystitis. Because of the patient's age and poor general condition, local anesthesia was used. The gallbladder was found to be distended, with moderately thick walls. There were some adhesions between the gallbladder and the omentum, which were freed. The gallbladder was then punctured with a trocar, and thick, dark red bile escaped. A scoop was then inserted into the gallbladder and a flat yellow object removed, which proved to be a portion of a tapeworm. It was gradually withdrawn from the gallbladder, in several pieces, including the head. Subsequent examination and measurement showed it to be *Taenia saginata*, 310 cm. long (10 feet 2 inches). Three small faceted stones were also removed, and the gallbladder drained with a rubber tube. Neither the cystic nor the common duct was explored.

Several days after the operation, additional history was obtained. The patient was of Irish descent, born in Concord, Mass. He had never been outside the United States. About fifty years ago he worked in a butcher's shop, and was accustomed while there to eat little pieces of raw beef—never any raw meat except beef. He has had no raw meat of any kind since leaving the butcher's shop about fifty years ago. He has had five previous attacks of right upper quadrant pain—one twelve years ago associated with vomiting, and four attacks during the last four years, with induced vomiting. There has been no jaundice at any time. The bowels have been slightly costive for several years. The appetite has always been good, but not excessive. For two years he has known that he had a tapeworm, passing segments about an inch and a half long, sometimes in the stools, sometimes separately. At one time, following medication advised by a physician, he passed a portion about 22 inches (56 cm.) long, and believed he had passed the whole worm; but after an interval of about three months, he began passing segments again, and continued to do so up to the time of the present illness. There has been only very slight loss of weight, 2 or 3 pounds (from 0.9 to 1.4 Kg.), and slight increase in appetite. On the morning of operation he vomited a piece of tapeworm—how long a piece is not recorded, but he says his "mouth was full of it."

Postoperative examination of the stools showed no parasites or ova.

The red blood count was 4,750,000; hemoglobin, 70 per cent. Blood smear revealed: polymorphonuclear leukocytes, 70 per cent; lymphocytes, 16 per cent; eosinophils, 14 per cent.

Convalescence was entirely uneventful. For about ten days there was a daily drainage of from 6 to 8 ounces of bile, gradually diminishing.

Seventeen days after the operation the patient was discharged to the outpatient department, entirely relieved.

COMMENT

In looking over the literature, I have been unable to find any record of *Taenia saginata* in the gallbladder. Roundworms, however, do occur in the bile ducts and the gallbladder. Aviles[1] reports a case of *Ascaris lumbricoides* in the gallbladder, and gives a review of the literature.

There are about ninety cases recorded in which the roundworms have wandered into the bile ducts, nine cases into the pancreatic duct, but only about seven cases in which they have penetrated as far as the gallbladder.

A brief review of the life history of the tapeworm may be of interest. Infection occurs through the eating of raw beef containing the larva or intermediate stage of *Taenia saginata* (*Cysticercus bovis*). When such beef is eaten, the head of the parasite attaches itself to the mucosa of the small intestine, segments develop from the neck region of the worm, and the adult stage becomes established in about two months. Segments and eggs then pass out by the rectum. Cattle become infested by the ingestion of eggs. These eggs develop into embryos, and are carried from the intestine through the blood to the muscles, where they become encysted (*Cysticercus bovis*), thus completing the cycle.

Regarding the method by which the tapeworm reached the gallbladder in the present case, there seems to be no doubt that it migrated up the bile ducts. There is some doubt, however, as to the time of migration, but I believe that it probably occurred at the time of the present illness, and was giving the patient very acute symptoms. His previous attacks may be accounted for by the stones found at operation.

In the history it is stated that the patient had eaten no raw beef for about fifty years; the patient himself was very certain on that point. This seems like a very long time to harbor one worm without being aware of it in any way until two years before the present illness. The history is, of course, open to question; the patient may have eaten imperfectly cooked beef. The only reference to the age of *Taenia saginata*, which I have been able to find, is in an article by Stiles,[2] who says, "Beyond the fact that persons may harbor this worm for a number of years, the exact longevity of this species is not established; considering the method by which the segments are formed, the age of the worm seems to be, theoretically, potentially almost indefinite."

* From the Surgical Service of the Massachusetts General Hospital.

1. Aviles, J.: The Rôle of Ascariasis in Gallbladder Disease, Surg. Gynec. Obst. **27**: 459-461 (Nov.) 1918.
2. Stiles, C. W., in Osler and McCrae's Modern Medicine, ed. 2, **2**: 248, 1914.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

TETANUS ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1926, p. 332).

Cutter Laboratory, Berkeley, Calif.

Tetanus Antitoxin for Human Use.—(See New and Nonofficial Remedies, 1926, p. 333.) Also marketed in packages of one syringe containing 10,000 units and in packages of one syringe containing 20,000 units.

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SATURDAY, DECEMBER 4, 1926

CAUSE OF THE DELAYED CLOTTING IN HEMOPHILIA

Among the various pathologic conditions in which an augmented tendency to hemorrhage is apparent, the special disorder known as hemophilia has certain unique features. Its hereditary character is conspicuous; indeed, as Wells [1] has remarked, since hemophilia seems, superficially at least, to depend on some alteration in a chemical property of the blood, namely, coagulability, it is frequently regarded as an example of hereditary transmission of chemical abnormality. Characteristic, uniformly present structural anomalies have not been discovered in hemophilic persons, so that etiologic explanations must be sought elsewhere. The incidence of hemophilia exhibits some analogy to the occurrence of chemical abnormalities of metabolism, such as cystinuria, alkaptonuria and pentosuria, so far as the hereditary features are concerned. It has been termed "the most hereditary of all hereditary diseases."

It is obviously of no small importance to discover the factors responsible for the condition of the blood in hemophilia. The bleedings, which may result from trivial cuts or bruises or may even appear spontaneously, are often severe and almost uncontrollable. The prognosis remains unsatisfactory so long as adequate control of coagulation of the blood cannot be assured; and this has awaited a proper interpretation of the actual chemical "disorganization" of the hemophilic blood. Progress has been impeded by the confusing information available regarding the phenomena of blood coagulation in general. Numerous investigators have devised a personal vocabulary for the description of hypothetic components of the blood and the interpretation of the changes that attend clotting. As a recent writer has remarked, the clotting of the blood is such a prominent phenomenon that it has attracted attention at all times, and as a result numerous theories to account for it have been advanced. Most of these now have simply an historical interest.

When presented in terms of the sponsor for some particular point of view, the story of the coagulation of the blood is usually a chapter of appalling complexity in the physiology of the circulatory mechanism. In this country Howell's views, based on his laborious researches at the Johns Hopkins University, are most widely quoted. They have been summarized as follows: In the circulating blood there are as constant components fibrinogen, prothrombin, calcium salts and antithrombin. The last-named substance holds the prothrombin in combination and thus prevents its conversion or activation to thrombin. When the blood is shed, the disintegration of the corpuscles (platelets) furnishes material (thromboplastin) which combines with the antithrombin and liberates the prothrombin; the latter is then activated by the calcium and acts on the fibrinogen. According to this view the actual process of coagulation involves only three factors, fibrinogen, prothrombin and calcium. These three factors exist normally in the circulating blood, but are prevented from reacting by the presence of antithrombin.

How are these various factors affected in hemophilic blood, which clots so slowly in comparison with normal blood? There is a general agreement among all recent workers that the fibrinogen of hemophilic blood does not differ either in quantity or in quality from that of normal blood. Thrombin added to hemophilic blood or to the fibrinogen prepared from it causes clotting in normal time. The fibrin formed in the clotting of hemophilic blood is stated to be normal in amount. The calcium also is present in usual concentrations. The latest investigations of Howell and Cekada [2] justify the conclusion that the prothrombin in hemophilic blood does not differ noticeably either in quality or in quantity from that found in normal blood. Since the other factors of coagulation, the fibrinogen, the calcium and the anticoagulants, which exist in the circulating blood have been shown to be normal, it is evident that the cause of the delayed clotting must be sought elsewhere. The authors believe that the clue to the right explanation is to be found in the properties of the blood platelets of the hemophilic blood. The relative stability of these elements in hemophilic blood when shed is so striking, they state; that it must have been noted by all workers in the subject; but apparently it has been studied with care only by Minot and Lee, whose work led them to the conclusion that in hemophilia there is an hereditary defect in the platelets of such a character as to make them less available for the purposes of coagulation.

Howell and Cekada remark that, whatever may be the true explanation of the normal fluidity of the blood, it seems evident, and most authors agree as to this fact,

1. Wells, H. G.: Chemical Pathology, ed. 5, Philadelphia, W. B. Saunders Company, 1925, p. 330.

2. Howell, W. H., and Cekada, E. B.: The Cause of the Delayed Clotting of Hemophilic Blood, Am. J. Physiol. **78**: 500 (Nov.) 1926.

that what we call intrinsic coagulation is initiated by and is immediately dependent on the liberation of thromboplastic material from the disintegrating platelets. In hemophilic blood the platelets are abnormally stable and their disintegration takes place more slowly; hence the delay in clotting. The condition thus described is in distinct contrast to what obtains in purpura, in which the blood platelets are greatly reduced in number while the acquired hemorrhagic tendency exists. There are recent indications that the latter is amenable to improvement through the influence of certain forms of radiant energy.

POSTOPERATIVE GASEOUS DISTENTION OF THE INTESTINE

Gaseous distention of the intestine is a familiar sequence of abdominal operations and of injury to the abdominal viscera through disease or trauma. The discomfort that it occasions to patients at a period that is likely to be distressing for other reasons inevitably gives concern to the physician and sometimes assumes the proportion of a grave menace to the afflicted. The recognition of the fact that motor disturbances, such as paralysis of the intestine, may follow insult to the gastro-intestinal tract has not been sufficient to point the way to effective treatment; indeed, the attempt to promote peristalsis by appropriate drugs has probably done harm rather than good in many instances. The reason for this has been indicated by a recent writer in a reminder that gaseous distention is not caused by intestinal paralysis per se. The actual ballooning out must be brought about by positive pressure of gas within the lumen. The composition, origin and behavior of the intestinal gases are thus important features of the problem of distention.

Fermentative changes in the alimentary residues are known to give rise to carbon dioxide, oxygen, nitrogen, hydrogen, methane and sometimes hydrogen sulphide, the proportions being subject to considerable variation. McIver, Benedict and Cline [1] of the Harvard Medical School have reemphasized two other sources of gases found in intestinal meteorism: the diffusion of blood gases into the intestinal lumen through the mucosa, and the passage of atmospheric air from the stomach into the intestine. The latter mixture of oxygen and nitrogen is admitted by swallowing and may be considerably increased under certain conditions. It only slowly disappears through absorption because of the close similarity between the composition of atmospheric air and that of the blood gases. This is of importance in connection with the view that air is a source of gas in distention. Actual analyses, by the Harvard investigators, of the intestinal gases from patients are "not inconsistent with the view that swallowed air plays a rôle in the production of postoperative distention."

1. McIver, M. A.; Benedict, E. B., and Cline, J. W., Jr.: Postoperative Gaseous Distention of the Intestine, Arch. Surg. 13: 588 (Oct.) 1926.

These investigations afford probability that much of this disagreeable symptom is caused by the propulsion of gas into the quiescent bowel from a stomach dilated by an overabundance of swallowed air, though fermentation of stagnating intestinal contents adds to the distending volume. The guiding principle of preoperative management, we are reminded by McIver, Benedict and Cline, should be to avoid as far as possible procedures that interfere with the normal functions of the intestine, and it should be remembered that this applies not only to the motor function but also to the absorbing function. It is obviously an advantage to have the stomach and small intestine empty and at rest at the time of operation; but a long starvation period is not necessary. After operative intervention and because rest is a fundamental principle in the treatment of injury, the Boston clinicians continue, the quieting effect of morphine is beneficial and drugs such as physostigmine or pituitary extract which are capable of setting up violent types of peristalsis should usually be avoided. In the studies of cases in which serious distention was feared, the continuous use of a small type of stomach tube for from twenty-four to forty-eight hours after operation was of definite benefit in preventing distention. The newer approaches to the problems from a physiologic outlook are likely to mark a step in advance in the management of postsurgical conditions of which there has been little unanimity of interpretation.

DEATHS OF PHYSICIANS

The results of a study of the deaths of physicians, based on the records from the files of the American Medical Association and the annual editorial in THE JOURNAL on this subject, have just been made available by Emerson and Hughes.[1] They attempted to determine, as far as possible, the relative death rates of white male physicians and those of other occupied males from the same causes in comparable age groups. The construction of the necessary statistical tables required an immense amount of work involving the classification by age groups of thousands of physicians, the distribution by states of physicians over 45 years of age, and the classification by important causes of death of the total occupied male population in the registration area from the occupation statistics of the census bureau for 1920. Having thus made possible a comparison, they found that with minor exceptions the specific death rates among male white physicians for organic heart diseases, pneumonia and diabetes were decidedly higher than among the occupied males of the country as a whole. For chronic nephritis, typhoid, pulmonary tuberculosis, cancer and violence, except suicide, the reverse was true.

The investigation showed further that the death rate of physicians from all causes combined in 1925 was

1. Emerson, Haven; and Hughes, Harriet E.: Death Rates of Male White Physicians in the United States, by Age and Cause, Am. J. Pub. Health, November, 1926.

lower than the death rate in 1920 of all occupied males in the age groups 25-44 and 65 years and over, and almost identical in the age group 45-64. About 60 per cent of the total number of male physicians in the country now are at least 45 years of age, whereas between 1890 and 1910 the percentage was about 40. It appears, therefore, that in the most active period of their lives (45-64) physicians are engaged in work no more hazardous than are men of about the same age in the general population. With due allowance for some speculation, it is probably true that there is less fatal tuberculosis among physicians as a group, because they know more about its early symptoms and are thus enabled to begin treatment sooner than men in other occupations. The life in the open required in the practice of medicine probably keeps the incidence of tuberculosis in this group relatively low. Typhoid is less prevalent because physicians believe in immunization and understand how to escape infection. There is pathos in the old records of THE JOURNAL in the larger number of young physicians who died of typhoid. The observation with regard to chronic nephritis is a surprise, for it seems, in the midst of this work day by day, that that is an unusually common cause of death.

Experience indicates that a physician gives the best he has to that fellow member of the profession whom he is privileged to attend during illness. He leaves nothing undone in diagnosis, he omits no scientific treatment, and he shows a fraternal feeling toward the patient. The "distressing commentary on the character of professional attention given to physicians in their final illnesses," which Dr. Emerson notes, is more apparent than real. The 432 deaths classified in THE JOURNAL under undetermined or ill defined causes does not mean that all those physicians died from some obscure ailment or of diseases that were not recognized. Probably nowhere are there more carefully kept data on deaths in a professional group than at the headquarters of the American Medical Association. The files represent a great interest in why physicians die, as well as an expenditure of effort not generally understood. At the close of each year, according to custom, they are tabulated and published early in January as an editorial, before sufficient time has elapsed to learn the cause of death of many who died in the latter part of the year. These appear, therefore, in the summary as causes undertermined because replies to inquiries have not been received, and not necessarily because the cause of death was not determined. The U. S. Census Bureau just now is sending out the mortality rates for 1925, which in itself shows the amount of time required to obtain the facts.

THE JOURNAL this year, at Dr. Emerson's suggestion, is trying out a new system of tabulation, which, although more effective, consumes more time and probably will delay the publication of the next editorial. If death notices when first sent to these headquarters contained the date of death, the age and the definite cause, it would be possible to assemble more valuable data. In some instances, several months elapse and several letters must be written before the cause of death can be secured. The replies are interesting, and some are pathetic. Not long ago, a wife gave the cause of her husband's death as "Just worn out"; a physician said in another instance, "Probably a heart attack or apoplexy." This week the "deceased" himself replied, "Bunk, I'm not dead yet."

Current Comment

CALCIUM ABSORPTION FROM THE INTESTINAL TRACT

For many years, calcium has been used in the treatment of disease, administered by mouth, subcutaneously and intravenously. Although much experimental work has been done on calcium absorption from the intestinal tract, conclusiveness has been lacking from the experiments as applied to man. With this in mind, Kahn and Roe [1] gave calcium lactate by mouth to twelve normal medical students and then determined the amount of blood calcium in relation to doses and to intervals after ingestion. These investigators found 5 Gm. of calcium lactate to be the optimal dose and obtained elevations in blood calcium as high as 108 per cent between the fourth and seventh hours after ingestion. This result, they state, disagrees with the work of several others who were unable to demonstrate any rise in blood calcium after oral administration of calcium salts. In this issue of THE JOURNAL, Bauer and Ropes [2] report experiments with oral administration of calcium. The maximum elevation of serum calcium which they obtained was only 28.5 per cent and their average increase, 14.0 per cent. Their optimal dose, moreover, was 10, rather than 5, grams. These varying results are hard to explain. A summary [3] of recent work by Bergeim on the absorption of calcium and phosphorus indicates that various conditions, present in some persons and absent from others, may modify the absorption and utilization of calcium. It seems possible that the explanation of the disparity in results will be found in some such factors as these, for the accuracy of the methods used by the two groups of investigators can scarcely be questioned. Bauer and Ropes made their determinations on blood serums, whereas, as they point out, Kahn and Roe did not state what portion of the blood they employed in their work. The latter authors,[4] however, write: "The method used for the estimation of calcium was the colorimetric procedure which we developed." Although the accuracy of the new method is yet to be confirmed,[5] Roe and Kahn checked it against the Kramer-Tisdall and Fiske methods, and were able to state that "the method is

1. Kahn, B. S., and Roe, J. H.: Calcium Absorption from the Intestinal Tract in Human Subjects, J. A. M. A. **86**: 1761 (June 5) 1926.
2. Bauer, Walter; and Ropes, Marian W.: The Effect of Calcium Lactate Ingestion on Serum Calcium, this issue, p. 1902.
3. The Absorption of Calcium and Phosphorus, editorial, J. A. M. A. **87**: 1395 (Oct. 23) 1926.
4. Roe, J. H., and Kahn, B. S.: A Colorimetric Method for the Estimation of Blood Calcium, J. Biol. Chem. **67**: 585 (March) 1926.
5. Determination of Calcium and Phosphorus in Blood, Queries and Minor Notes, this issue, p. 1935.

very accurate." Bauer and Ropes employed the Clark modification of the Kramer-Tisdall method. The chief result of both of these investigations is not their quantitative disagreement but their qualitative agreement. In both, an increase in blood calcium was found following oral administration of calcium salts. This should reassure the practitioner who does not wish to administer calcium subcutaneously or intravenously.

MEDICAL HISTORY

At the annual session of the British Medical Association, to be held in Edinburgh in July, 1927, a special meeting will be devoted to a section on the history of medicine. The meeting is particularly timely in view of the fact that the 1927 meeting is connected with the celebration of the centenary of the birth of Lord Lister, and that the Edinburgh University is reported by the *British Medical Journal* to have been the first medical school in Great Britain to recognize the importance of teaching the history of medicine, establishing a lectureship in 1908. This lectureship is a voluntary course and has been attended each year by from sixty to ninety students. The course consists of twenty lectures, comprising a complete outline of medical history, beginning with Egyptian medicine and carrying through the development of physiology, pathology and the fundamental medical sciences. A few American medical schools now have regularly established courses on the history of medicine. Quite recently the Johns Hopkins University Medical School established a professorship in this subject, conferring the first appointment on William H. Welch, who has done so much for the promotion of this phase of medical culture in the United States. The mark of the cultured man is a knowledge of the foundation and processes by which his art and his science reached their prestige. Unfortunately, too few physicians care to give the time or the interest necessary for even a moderate acquaintanceship with medical beginnings.

THE KAHN REACTION IN THE DIAGNOSIS OF SYPHILIS

Since the Wassermann test was first announced and popularized as a diagnostic aid in syphilis, numerous investigators have offered simpler reactions for medical approval. The Sachs-Georgi, Meinicke and the sigma reaction of Dryer and Ward have been recommended for use as checks on the Wassermann test. The Kahn reaction is apparently the first precipitation method to be used with success independently of the Wassermann test. About a year has passed since the Michigan State Department of Health abandoned the Wassermann test and made the Kahn test the standard method; during the interval it has reported to physicians more than eighty thousand Kahn tests. The medical department of the United States Navy also made the Kahn test standard about a year ago. Houghton, Hunter and Cajigas,[1] in this issue of THE JOURNAL, speak for the high degree of dependability of the Kahn test as a serum diagnostic method for syphilis. Kahn produced evidence to indicate that concentration of the ingredients that make up a precipitation test will hasten the formation of precipitates, while dilution of the ingredients will delay or prevent the formation of precipitates. He has urged also that for best results there must exist a correct quantitative relationship between the syphilitic serum and the antigen. Factors that favor precipitation are the use of an unstable mixture of antigen and physiologic sodium chloride solution, and the shaking or agitation of the mixture after the addition of the syphilitic serum. The Wassermann test has been in use for twenty years, and physicians are notoriously conservative in discarding well established procedures for new methods without superlative advantages. Even yet, however, serologists disagree on the method of preparing antigen and titrating complement and of other seemingly important steps in the performance of this test. The Kahn test may apparently be used in the small hospital laboratory, in the field laboratory, aboard ship or in the tropics with the same degree of accuracy. Probably the next few years will witness an interesting struggle between the Kahn and Wassermann tests. The Kahn test gives evidence of being a dependable method for the serum diagnosis of syphilis. Whether or not it has enough superior features entirely to replace the older method, only time will tell.

1. Houghton, J. E.; Hunter, O. B., and Cajigas, T. M.: The Kahn Test, this issue, page 1898.

SUPREME COURT UPHOLDS LIMITATIONS ON THE MEDICINAL USE OF LIQUOR

The United States Supreme Court, by a five to four decision, has determined that the limits imposed by the National Prohibition Act on the medicinal use of liquor are valid. The duty of the medical profession to confine itself within those limits is therefore clear. Prior to this decision, a reasonable man might well have believed that the act represented arbitrary class legislation. If under such circumstances a physician, deciding for himself that the limitations were void, disregarded them — particularly when he felt that the health and possibly the life of a patient was at stake— he might have been regarded as acting within his rights as a citizen, challenging the validity of the act and at the same time being prepared to defend himself in court if necessary. But now that the United States Supreme Court has declared that all the limitations and distinctions made by the act are constitutional and within the power of Congress to impose, justification for ignoring the act cannot be found. The more rigidly physicians abide by the law, the greater will be the chances for relief; for, if alcoholic liquors have medicinal value, the public, after all, not the medical profession, will suffer. The fact that the limitations on the medicinal use of liquor were sustained by a bare majority of the court indicates the strength of the contention of the American Medical Association and Dr. Samuel W. Lambert of New York, on whose behalf the suit just determined was initiated, that such limitations were invalid. If relief is to come at all, it must come now through an act of Congress.

Association News

ABSTRACT OF MINUTES OF MEETING OF THE BOARD OF TRUSTEES, HELD IN CHICAGO, NOVEMBER 18, 19 AND 20

All members of the Board were present at this, the fall meeting; also the President and the President-Elect.

SUPPLY AND CONTROL OF MEDICINAL LIQUOR

The Board instructed Dr. W. C. Woodward, executive secretary of the Bureau of Legal Medicine and Legislation, to go to Washington, together with Dr. W. H. Mayer, chairman of the Committee to Cooperate with the Commissioner of Internal Revenue, to confer with the Assistant Secretary of the Treasury with respect to proposed legislation for the control of medicinal liquors. Drs. Woodward and Mayer were instructed to use their best endeavors to bring the proposed legislation into line with the resolution passed by the House of Delegates in regard to maintaining and marketing the supply of medicinal liquor.

PROPOSED BILL REQUIRING NOTICE IN ADVANCE OF ISSUANCE OF REGULATIONS REGARDING ALCOHOLIC LIQUORS

The draft of a proposed bill intended for enactment by Congress, requiring notice to be given before the issuance of regulations promulgated by virtue of any act of Congress to govern the importation, production, sale or distribution of alcohol and alcoholic liquors and of narcotic and other habit-forming drugs, was considered by the Board and the principles laid down therein were endorsed. Instructions were given that if feasible an effort should be made to secure the enactment of the proposed bill by Congress.

RAILROAD RATES TO WASHINGTON

The Secretary and General Manager reported to the Board that earnest effort had been made to secure summer excursion rates for the benefit of those members and Fellows of the Association in the Far West who may attend the annual session in Washington, but that the passenger association having jurisdiction in the matter had refused to make the concession requested.

FULL-TIME REPRESENTATIVE IN WASHINGTON

The General Manager announced that in accordance with instructions received from the Board of Trustees at its last meeting, arrangements had been made for a full-time representative to be on duty in Washington during the sessions of Congress.

COMBINATION OF QUARTERLY CUMULATIVE INDEX AND INDEX MEDICUS

The Board approved the agreement entered into between the General Manager and the Editor of THE JOURNAL with the Carnegie Institution and the librarian of the Surgeon-General's Library with respect to the combination of the *Quarterly Cumulative Index* and the *Index Medicus*. This combined publication will in the future be known as the *Quarterly Cumulative Index Medicus*, and the first number will appear in April, 1927.

CONFERENCE ON PUBLIC HEALTH EDUCATION

The Board appointed a committee to consider plans for the calling of a conference at the headquarters office on public health education.

PUBLICATION OF NAMES OF PHYSICIANS WHOSE LIQUOR PERMITS ARE REVOKED

A communication addressed to the Board of Trustees and objecting to the publication in THE JOURNAL of the names of physicians whose liquor permits have been revoked was given careful consideration. The general opinion of the Board, as brought out in the discussion, was to the effect that the members of the profession in the state referred to in the communication mentioned are not more lax than are those in other states, but that the prohibition administrator in the particular territory concerned is more rigorous in his methods of enforcement of the law than are the administrators in other states. It was decided that the publication of names of physicians whose liquor permits have been revoked is to be continued and that a statement concerning the matter shall be published in the editorial colums of THE JOURNAL.

EXPERT OPINION EVIDENCE

Dr. G. E. Follansbee, Cleveland, and Dr. W. C. Woodward, secretary of the Bureau of Legal Medicine and Legislation, were instructed to go to New York, December 1, to confer with the Committee on Jurisprudence and Law Reform of the American Bar Association on the subject of expert opinion evidence. An invitation to the Association to send representatives to the meeting of this committee was extended by its chairman, Hon. Henry W. Taft.

EXTENSION OF THE REGISTRATION AREA

The Secretary of the Association reported to the Board that favorable replies had been received from the secretaries of several state medical associations to the letter concerning birth and death registration and the extension of the registration area, which he had addressed to them under instructions from the House of Delegates.

MEDICAL ETHICS

After discussion of a suggestion made by the President-Elect, Dr. Jabez N. Jackson, with respect to the teaching of ethics in medical schools, it was decided that the Board of Trustees should express to the Council on Medical Education and Hospitals its view that lectures on medical ethics should constitute a portion of the curriculum in every medical school approved by this council.

The Board adjourned at 10 a. m. on Friday, to attend the sessions of the conference of secretaries of constituent state medical associations.

REPORT OF COMMITTEE ON SCIENTIFIC EXHIBIT

The report of the Committee on Scientific Exhibit was presented through its chairman, Dr. D. Chester Brown. On recommendation of this committee, it was decided that: (1) in case a gold, silver or bronze medal is awarded by the Committee on Awards to two or more individuals jointly participating in one exhibit, the participants will be requested to designate one person as the custodian of the medal, and each of the other members of the group concerned will receive an embossed certificate stating that a medal of a certain kind was awarded to the group; (2) in case of a certificate of merit awarded to two or more individuals jointly, certificates will be issued to each participant.

MISCELLANEOUS BUSINESS

Reports from standing committees were received by the Board and a considerable amount of important routine business was transacted.

Adjournment was taken on Saturday morning, November 20, until the next regular meeting of the Board, to be held in February, 1927.

THE WASHINGTON SESSION

Scientific Exhibit

The Scientific Exhibit for the Washington Session, May 16-20, 1927, will be located in the Washington Auditorium; in this building will also be housed the Registration Bureau, Technical Exhibits, and Motion Picture Theater.

The Committee on Scientific Exhibit desires to emphasize again that exhibits should be presented in a way that will stress their scientific value. This may be done by carefully worded placards, but particularly by personal demonstration. (The committee requires that all booths shall be in charge of a competent demonstrator.) Also it should be remembered that the general attractiveness of the exhibit is essential; the committee will do its part by having the booths decorated appropriately and will furnish uniform signs giving the name of the exhibitor and the title of the exhibit. The total amount of space available in Washington for exhibit purposes is rather limited—approximately the same as that of last year—although the expected attendance is relatively large. From the interest already manifested in the next Scientific Exhibit,

it is evident that large blocks of space cannot be assigned to individual exhibitors.

A fully equipped Motion Picture Theater for talks illustrated with lantern slides and motion pictures will be an adjunct of the Scientific Exhibit. It will be located on the floor above the Exhibit. Unless there are exceptional reasons, the length of the periods will be limited to two quarters (one-half hour).

Application blanks for the Exhibit or the Motion Picture Theater may be obtained by sending requests for them to Director, Scientific Exhibit, 535 North Dearborn Street, Chicago.

The committee will make no assignments previous to March 10, in order that the amount of space available may be apportioned to the best advantage to all concerned. All applications must be received before this date.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

State Board Officers Reelected.—At a business meeting of the state board of medical examiners, Sacramento, October 19, all officers of the board were reelected: Dr. Percy T. Phillips, Santa Cruz, president; Dr. Harry V. Brown, Glendale, vice president, and Dr. Charles B. Pinkham, secretary.

Proposal to Prevent Beauty Parlor Deaths.—Reiterating that at least a dozen deaths have occurred in California from the promiscuous use of preparations and processes employed by "beauty specialists," the secretary of the state board of medical examiners, Dr. Charles B. Pinkham, stated, November 3, that a bill would be introduced into the next legislature to prohibit "beauty specialists," except those who may be licensed physicians, from using dangerous drugs in their work.

Poo On and Gum.—Pleading guilty to four counts of selling liquor, Poo On, Chinese herbalist of Modesto, was fined $300 and sentenced to eighteen months in jail, recently, by Judge Needham. The jail sentence was suspended for sixty days on condition that Poo goes back to China. Poo On still has three charges against him, it is reported, two for practicing medicine without a license, and one for carrying a concealed weapon. In 1919, Poo and B. T. Gum, also an herbalist of Modesto, were reported arrested for traffic in narcotics. Poo was reported convicted in 1920 for violating the medical practice act.

County Society Aids Campaign for Cripples.—The San Joaquin County Medical Society is taking an active part in the campaign to rehabilitate crippled children which has been sponsored by welfare organizations and civic clubs, and which will probably be the beginning of the California Society for Crippled Children. The medical society addressed a letter to all school teachers, asking them to canvass their districts to discover crippled children. The society, assisted by specialists from the University of California, held diagnostic clinics, November 18, at the San Joaquin local health district center, Stockton, and at the health center in Lodi. This was the first of a series of clinics to aid the "hundreds of children" in the county afflicted by such physical defects as have been produced by various forms of paralysis and birth conditions.

CONNECTICUT

Christmas Seals Aid Tuberculosis Hospitals.—For nineteen years, the sale of Christmas seals has financed largely the antituberculosis campaign. From these sales, substantial aid has been given to about 600 hospitals and sanatoriums for the tuberculous throughout the country, and preventoriums for those exposed to tuberculosis; nutrition classes for underweight children, open air schools and thousands of nurses have been provided. Eighty-five per cent of the amount collected in the sale of Christmas seals remains in the local community. In Connecticut there are five tuberculosis sanatoriums under the direction of the tuberculosis commission at Hartford, Meriden, Norwich, Shelton and Niantic; connected with these institutions are clinics in about twenty-five towns. In 1913, there were 1,436 deaths from tuberculosis reported to the state department of health, and for the last seven years the number gradually decreased to 996 in 1925.

FLORIDA

State Society's Increased Membership.—The *Journal of the Florida Medical Association* notes that the association now has 1,088 members as compared with 804 for the corresponding period last year. The goal has been placed at 1,200 members before the next annual meeting, West Palm Beach, April 5-6, 1927. Members who desire a place on the program for this meeting are requested to forward a twenty word abstract of their paper and the names of three physicians whom they desire to discuss their papers to Stewart G. Thompson, D.P.H., business manager, Box 135, Jacksonville.

Society News.—The state board of health, which was on a tour of inspection of the area that was devastated by the storm, met with the Broward County Medical Society, Fort Lauderdale, recently. Dr. Leslie H. Maxwell, president of the society, presided. Lieut. Col. Percy L. Jones, Medical Corps, U. S. Army, Atlanta, Ga., who has been on duty in the devastated area, and Dr. William J. Buck, West Palm Beach, addressed the society.——At the semiannual meeting of the Florida Midland Medical Society, Dr. Robert L. Cline, Lakeland, was elected president for the ensuing year, and Dr. Burdette Smith, Tampa, secretary.

ILLINOIS

Chiropractors Fined.—Chiropractor Milo Grimes, Rock Island, was fined $250 on each of two counts, and Chiropractor John J. McGinley, $100 on each of three counts on charges of practicing without licenses, November 13, it is reported.

Liquor Licenses Revoked.—The district prohibition administrator, with headquarters in Chicago, recently issued orders revoking the licenses of the following for the reasons indicated:

Dr. J. C. Halpin, Springfield, failed to keep proper records. Unlawfully issued prescriptions. Diversion.
Dr. William F. Sappington, Springfield, not licensed to practice medicine and surgery in Illinois.

Hospital News.—St. Mary's Hospital of Quincy is conducting a drive for $150,000 for an addition to the hospital.——The new hundred bed, $290,000 Elmhurst Hospital, Elmhurst, was dedicated, October 10. All rooms are private or semiprivate. The birth rooms and the nursery were furnished by local clubs. One room is dedicated to Dr. Edward W. Marquardt, who is said to have organized the stock company that controls the institution. The staff has not yet been selected.

Personal.—Dr. Frank H. Bartlett, Jr., superintendent, Livingston County Tuberculosis Sanatorium, Pontiac, has resigned to become superintendent of the Muskegon County Tuberculosis Sanatorium, Muskegon, Mich. Dr. Bartlett came to Pontiac four years ago, when the sanatorium was first opened.——Dr. Frank Worden, who has practiced for fifty years in the city of Alton, has retired from practice.——Dr. Leroy Jones has been appointed city health officer of Hoopeston to succeed the late Dr. Arthur J. Clay.

Society News.—Dr. Frank C. Sibley, Carmi, was elected president of the Southern Illinois Medical Association, November 10, at the annual meeting, East St. Louis, and Dr. William J. Benner, Anna, secretary-treasurer. The next annual meeting will be held at Murphysboro.——The McHenry County Medical Society reelected all of its officers by unanimous vote at the regular meeting, Woodstock, November 3; Dr. Robert H. Hayes, Chicago, conducted a tuberculosis clinic.——A cancer clinic at the Decatur and Macon County Hospital has been planned for Jan. 6, 1927, in connection with the educational program in cancer control. Dr. Joseph C. Bloodgood, Baltimore, will address civic and professional clubs during the day, and will conduct the cancer clinic.

Chicago

Reception at Rush.—The faculty and student council of Rush Medical College of the University of Chicago have issued invitations to an informal reception, Friday evening, December 3, in the library of the Rawson Building, Harrison and Wood streets. Drs. James B. Herrick and Arthur Dean Bevan will speak, and there will be dancing.

Hospital Endowment Almost a Million.—The Chicago Memorial Hospital, whose new building at Groveland Park and the Lake will be completed about March 1, recently received an endowment fund of $250,000 in stock from Mr. William Wrigley, and $100,000 from Mr. and Mrs. William L. Brown of Evanston. These gifts, together with the endowment previously owned by the hospital, make the total endowment fund now about $1,000,000.

Liquor Licenses Revoked.—The local prohibition administrator issued orders revoking the licenses of the following for the reasons indicated:

Dr. Aaron G. Fairfax, failed to keep proper records. Unlawfully issued prescriptions.
Dr. John P. Fernel, failed to keep proper records. Unlawfully issued prescriptions.
Dr. James A. Grant, failed to keep proper records. Unlawfully issued prescriptions. Diversion.
Dr. George N. Lee, failed to keep proper records. Unlawfully issued prescriptions. Diversion.
Dr. Louis F. Waldmann, failed to keep proper records. Unlawfully issued prescriptions. Diversion.

Financial Statement of Cook County Hospital.—The annual financial statement of Cook County Hospital shows, according to the Chicago *Daily News*, an expenditure of $1,929,013.89. Some of the expenditures were said to be as follows:

Nursing	$701,683.59
Salaries	688,602.59
Light, heat and power	118,687.29
Supplies	393,811.69
Operating expenses	2,676.72

There is available for new buildings $2,555,000 through a bond issue, and construction is under way. The average daily number of patients was 1,764, and the average daily cost for each patient, $2.99. Exclusive of salaries and nursing, the average daily cost of each patient was said to be 83 cents.

Society News.—Paul H. Douglas, Ph.D., of the University of Chicago and author of "Wages and the Family," addressed the Physicians' Fellowship Club, Logan Square Masonic Temple, November 19, on "The Family Allowance."——Dr. Isaac A. Abt addressed the Chicago Pediatric Society, November 16, on "Anorexia in Children."——The University of Illinois faculty will furnish the program of the Chicago Medical Society, December 8.——The Chicago Society of Internal Medicine will hold a joint meeting, December 20, with the Illinois Branch of the Society of Experimental Biology and Medicine.——At the forty-eighth annual meeting of the Chicago Gynecological Society, October 22, Dr. William A. N. Dorland was elected president, and Dr. Joseph L. Baer, secretary.——Dr. Adolphus G. Wippern addressed the Physicians' Fellowship Club, 2451 Kedzie Boulevard, November 5, on "Development of Music."——Members of the Chicago Medical Society gave a dinner in honor of Dr. Royal Whitman, New York, at the Hamilton Club, December 1. Dr. Whitman addressed the society on "Abduction Treatment for Fracture of the Neck of the Femur"; Frank Loesch, formerly president of the Chicago Bar Association, gave an address on "A Permanent Home."——The Illinois and Chicago Societies of Industrial Medicine and Surgery will hold a joint meeting, December 6-7. Dr. Claud R. G. Forrester and his associates will conduct a clinic at the West Side Hospital, 10 a. m., Monday; clinics will be conducted at the Cook County Hospital, 2 p. m., by Drs. Edwin M. Miller, Harry Jackson, Kellogg Speed, Sumner L. S. Koch and William R. Cubbins. There will be a dinner at the Great Northern Hotel, 6:30 p. m., where Dr. Koch will speak on "Surgery of the Hand with Motion Pictures," and on Tuesday, at 9 and at 2 o'clock, there will be clinics at St. Luke's Hospital, and Mercy Hospital, respectively, by Drs. Hopkins, Plummer, Fisk, Walker, Holmblad and Mock, and Drs. Kreuscher, Pierce, Jacobson and Griffin.——Among others, Dr. Effa V. Davis addressed the Chicago Council of Medical Women, December 3, on "Gonorrhea in Pregnancy."——The Chicago Laryngological and Otological Society will meet, December 6, at Stevens' Restaurant, 16 North Wabash Avenue. Dr. Jerome F. Strauss, among others, will speak on "Pterygomaxillary Abscess as an Acute Mastoid Complication," and Dr. George E. Shambaugh will open the discussion.——The Chicago Orthopedic Club will meet in the Crerar Library Building, December 10. Among others, Dr. Robert O. Ritter will speak on "Synovectomy of the Knee."——The clinical meeting of the Chicago Surgical Society was held at Cook County Hospital, December 3. The scientific program was presented following dinner at the University Club in the evening. Among others, Dr. Edwin M. Miller discussed "Chronic Duodenal Ileus," and Dr. Golder L. McWhorter, "Changes in the Liver and Gallbladder of Animals Following Experimental Use of Sodium Tetrabrom and Tetraiodophenolphthalein."

KANSAS

Society News.—The Shawnee County Medical Society will hold its annual meeting, December 6, which will be followed by a dinner for the members and their wives. Dr. Richard L. Sutton, Kansas City, will relate his experiences on a recent hunting trip in southern Asia, illustrating his lecture with lantern slides.——Dr. Louise V. F. Richmond, Hutchinson, has been elected president of the Seventh District Medical Society for the ensuing year.

Outbreak of Diphtheria.—An outbreak of twenty-five cases of diphtheria in Coffeyville was reported recently by the city health officer. The state epidemiologist arranged for cultures from all grade schools immediately. Eighty-three children were found to be carriers of diphtheria organisms, and were placed under quarantine. No cases have occurred in school children since cultures were taken and the carriers removed from the schools. The physicians of Coffeyville, in cooperation with the state board of health, completed the immunization of 2,000 children with toxin-antitoxin from November 1 to 15.

KENTUCKY

Health Center Opened.—The Portland Health Center, 2419 Portland Avenue, Louisville, opened, November 3, is fostered by the Community Chest and the city board of health, and is being financed largely by the Portland Civic Club. The center will be open daily; the schedule of clinics, including the dental clinic, will be announced later. Dr. George H. Yenowine has been appointed chairman of the medical staff. At the opening, about fifty children started their immunization against diphtheria.

"Eye Specialists" Swindle Farmer.—The state board of health has warned the people of Kentucky against certain fraudulent persons who are appearing in scattered sections, posing as "eye specialists." These crooks recently visited a farmer in a northern Kentucky county, assuring him that by placing a "little radium" in his eye a cataract would be removed. The farmer lost $600, but apparently not the cataract. THE JOURNAL has recently noted the appearance of similar fraudulent "eye specialists" in other sections of the country.

MASSACHUSETTS

Dr. Bigelow's Will.—The will of the late Dr. William Sturgis Bigelow leaves more than $200,000 in equal shares to the Massachusetts General Hospital, the Boston Museum of Fine Arts and Harvard College.

Increase in Death Rate.—The death rate for Massachusetts for 1925 was 12.48 per thousand of population, the department of commerce announces, as compared with 12.03 in 1924. The increase was more than accounted for by increases in heart disease, pneumonia, nephritis, influenza, measles and whooping cough. There was a decrease in the death rate from diphtheria.

Society News.—Dr. Abraham Myerson was elected president of the Massachusetts Psychiatric Society, October 21, and Dr. Winfred Overholser, secretary-treasurer.——Dr. John V. Gallagher, Milford, was elected president of the Thurber Medical Association at its seventy-third annual meeting in Milford, October 21. This is said to be one of the oldest medical societies in the United States.——Dr. Charles F. Painter addressed the Boston Medical History Club, November 26, at the Boston Medical Library, on "History of Development of Medical Schools."——The New England Heart Association will meet, December 16, Peter Bent Brigham Hospital. Physicians are cordially invited. Dr. William H. Robey will discuss "Effects of Tonsillectomy on Acute Rheumatic Fever and Rheumatic Heart Disease."

Resignations and Appointments at Harvard.—Dr. Paul Thorndike, clinical professor of genito-urinary surgery at Harvard University Medical School, has resigned from the department of surgery. According to the *Boston Medical and Surgical Journal*, Dr. C. Morton Smith has resigned as clinical professor of syphilology and his place has been filled by Dr. Henry D. Lloyd, instructor in syphilology, whose title will be "assistant professor of syphilology." Dr. Edward W. Taylor has resigned as James Jackson Putnam professor of neurology; Dr. James B. Ayer will take up Dr. Taylor's work, and will be in charge of teaching neurology at

Massachusetts General Hospital; his title is "clinical professor of neurology." Edward A. Boyden, Ph.D., assistant professor of comparative anatomy, has resigned to accept the position of associate professor of anatomy in charge of the department of anatomy at the University of Illinois, and his place is to be filled temporarily by Dr. Torr W. Harmer.

MISSISSIPPI

Contributions to Sanitarium Club.—Mme. Amelita Galli Curci and many well known authors contributed to a campaign to raise funds for the Sanitarium Sunshine Club of Jackson, recently. A feature of the campaign was a collection of books autographed and donated by Henry Van Dyke, H. L. Mencken, Joseph Hergesheimer, Irvin S. Cobb, Rupert Hughes, Ring Lardner and others. Another feature was the sale of fourteen baseballs inscribed and contributed by nationally known players, from the sale of which $691 was obtained.

Society News.—The Southern Surgical Association will hold its annual meeting at Biloxi, December 14-16.——The Clarksdale and Six County Medical Society met, November 10. Among the speakers were Dr. James A. Slack, Friars Point, "The Common Cold"; Dr. Willis C. Campbell, Memphis, Tenn., "Prevention of Deformity by the General Practitioner"; Dr. William L. Howard, Memphis, Tenn., "Conservative versus Radical Treatment of Paranasal Sinusitis"; Dr. John L. McGehee, Jr., Memphis, Tenn., "The Acute Abdomen," and Dr. J. Bonner Mitchell, Clarksdale, "Irregular Practice."——The North East Mississippi Medical Society will meet, December 21, at Tupelo. Among others, Dr. Charles C. Bass, dean, professor of experimental medicine and director of the laboratories of clinical medicine, Tulane University of Louisiana School of Medicine, will speak.——The Delta Medical Society met at Indianola, October 13, and was addressed, among others, by Dr. Ulysses S. Wasson, Moorhead, "Artificial Infant Feeding," and Dr. Luther B. Otken, Greenwood, "Ectopic Pregnancy."

MISSOURI

Physicians in the Legislature.—The fifty-fourth general assembly, which convenes, Jan. 5, 1927, will have seven members who are physicians: Guy B. Mitchell, Branson; John W. Holliday, Sr., Atchison County; C. H. Wallace, Buchanan County; A. H. Baldwin, Cass County; David A. Pollard, Henry County; Edward L. G. Barnhouse, Iron County, and Benjamin E. Latimer, Wright County. Six of the seven physicians are members of the state medical association.

Research in Obstetrics.—One entire floor of the new St. Louis Maternity Hospital will be devoted to research laboratories for full-time workers, this being made possible by a gift of $650,000 from the Rockefeller Foundation, provided the entire sum is used in obstetric research work. The new hospital building will be completed in June, 1927, and will cost $750,000. The maternity hospital was established in St. Louis as a private hospital in 1908, and is now a unit of the Washington University group of hospitals. Dr. Frederick J. Taussig is chief of staff.

Personal.—Dr. George A. Auerswald, De Soto, has been appointed medical adviser to the Workmen's Compensation Commission. The salary attached is said to be $4,000. The voters of Missouri approved the Workmen's Compensation Act at the November election, and the governor has just appointed the commission. The law provides that all fees and charges shall be subject to regulation by the commission, and shall be such as are fair and reasonable for similar treatment of injured persons of a like standard of living. The commission also has authority to determine all disputes as to the charges.

Society News.—Dr. Walter Baumgarten, Washington University Medical School, St. Louis, addressed the Marion County Medical Society, Hannibal, November 10, on "X-Ray of the Gallbladder."——The St. Louis Heart Association filed a petition for incorporation, November 6.——Dr. William A. Delzell, Springfield, was elected president of the Southwest Missouri Medical Society, October 30.——Dr. Walter C. G. Kirchner addressed the St. Louis Medical Society, November 30, on "The Problem of the Subclavian Aneurysm: Ligation of Artery at First Division." The December 7 meeting will comprise talks by Dr. Augustus G. Pohlman on "The Embryological Viewpoints" and by Dr. Fred W. Bailey on "Preventive Surgery."——The St. Louis Medical Society has sold its old building at 3523 Pine Boulevard to the C. V. Mosby Company, St. Louis publishers, who have already moved their offices into the building.

MONTANA

Decrease in Death Rate.—The U. S. Department of Commerce announces that the death rate in Montana in 1925 was 7.72 per thousand population, as compared with 7.90 in 1924. The decrease was accounted for by decreases in the death rates for tuberculosis, measles, diphtheria and mine accidents. There were increases in the death rates from influenza, pneumonia and whooping cough.

NEW JERSEY

Suits Instituted Concerning Food.—The department of health of the state of New Jersey, during August and September, referred to the attorney general for prosecution eighteen cases concerning the sale of milk below standard, five for the sale of watered milk, one case for insanitary conditions on creamery premises, one for the sale of adulterated olive oil and one for the sale of cream below standard.

Health Center at Paterson.—The new city health center at Paterson, with the exception of that in Newark, is the only municipal health building in a city in the state. Paterson's health center is maintained in a former public school building, which was renovated at a cost of about $100,000 for its present purpose. The business offices, including those of the health officer and the board of health, and clinics are on the main floor. The laboratory, child health clinic, rest rooms, showers, venereal disease clinic, and the offices for the sanitary drug and food inspectors are on the second floor. The tuberculosis league, the "protective officer," the division of public health nurses, and the registrar of vital statistics have offices in the building. The equipment in the clinics throughout the building is said to be the most modern obtainable. On the third floor is a lecture hall where various organizations engaged in health work hold meetings.

Conference on Washing Oysters.—Following a conference between the U. S. Department of Agriculture, representatives of the state board of health, the State Shell Fisheries Commission, producers and shippers of raw oysters and the bureau of chemistry, the department of agriculture issued a statement to the effect that producers in New Jersey are cooperating in the handling of "floated" oysters. It has long been recognized that after shucking it is necessary to wash oysters, and that this results in the incorporation of a very small amount of water against which the department officers have no objection. Washing, however, which results in the incorporation of excess water brings the product within the prohibition of the federal Food and Drugs Act, for the enforcement of which the department of agriculture is responsible. The members of the conference agreed to adopt every possible means to cooperate in cleaning oysters, so as not to produce an unduly watered product.

NEW YORK

Smallpox at Watertown.—During the two weeks ending November 12, sixty cases of smallpox were reported in the city of Watertown. This is said to be the largest number of cases that the city has ever had at one time.

Proceedings Against Illegal Practitioners.—Dr. Harold L. Rypins, secretary, state board of medical examiners, reports that two convictions have been secured under the new medical practice act, and complaints have been prepared against several other illegal practitioners. Four inspectors are giving full time to the investigation of complaints, and the number of prospective cases is large. Many illegal practitioners against whom evidence has been sought have moved from the state. Many other cases have been referred to the grievance committee without charges being prepared or any publicity made. The new medical practice act is functioning efficiently, but the code of criminal procedure in New York is unusually slow, and it permits the accused to avail themselves of delays.

Society News.—The New York State Association of Public Health Laboratories held its autumn meeting at the state laboratory, Albany, November 12, which was attended by representatives from all sections of the state.——The offices of the state medical society now are in the new building of the New York Academy of Medicine, 2 East One Hundred and Third Street; the new quarters provide more space for the clerical staff and privacy for conferences of officers, and they are in keeping with the development of activities of the state society.——Dr. Livingston Farrand, president, Cornell University, Ithaca, addressed the Tompkins County Medical Society, October 26, on "County Health Units."

New York City

Proposed Medical Center for Women Physicians.—The Women's Medical Association of New York City invites all medical women of the state and city to a meeting at the Women's University Club, 106 East Fifty-Second Street, New York, December 1, 8 o'clock, to discuss and take action on the proposal to form a medical center for women physicians in New York, "worthy of the Empire State."

Personal.—Dr. Harrie Sheridan Baketel has resigned as editor of *Medical Times*, after fifteen years of service, to devote his time to *Medical Economics*.——Janet Geister, executive secretary, Association of Tuberculosis Clinics, New York, has been appointed director of the American Nurses' Association to succeed Agnes G. Deans, and will assume her position January 1.——Dr. Samuel Weiss has been promoted to clinical professor of gastroenterology at the New York Polyclinic Medical School.

Baltimore Medical Club.—The autumn meeting of this club will be at the Hotel Commodore, December 8, 7 p. m. Dr. Wendell C. Phillips, President of the American Medical Association, and Dr. J. M. H. Rowland, dean, Medical Faculty, University of Maryland, Baltimore, will be the guests. Entertainment will be furnished by theatrical stars. Tickets may be obtained from Dr. Walter G. Lough, treasurer, 485 Park Avenue, New York. The club consists of graduates of Baltimore medical colleges residing within the Metropolitan district. The president is Dr. David E. Hoag; the secretary, Dr. Dumont F. Elmendorf.

Poverty Declines.—In a preliminary report, Cornelius N. Bliss, president of the Association for Improving the Condition of the Poor, states that 33,415 persons were aided by the association during the year ending October 1, of whom almost 22,000 were children. The amount of poverty, the report is said to state, is decreasing, as a result in part of a decreased mortality from tuberculosis, of decreased immigration, of the workmen's compensation laws and of a better standard of living among wage earners. Mr. Bliss said, it is reported, that the association's nurses and field workers made 103,172 visits among the sick poor of Manhattan and the Bronx, that the work is encouraging in view of the trend downward in the total amount of poverty and sickness among the poor, and that the money expended by the association today counts for more in permanent benefit than ever before in the history of the organization. In entering its eighty-fourth year, the Association for Improving the Condition of the Poor appeals to the public to provide a budget of $1,267,000 for the next year. The vice presidents of the organization are Percy P. Pyne, R. Fulton Cutting, Dwight W. Morrow and Albert G. Milbank; the treasurer, George Blagden; the secretary, Acosta Nichols; the counsel, George W. Wickersham, and the general director, Bailey B. Burritt.

Society News.—The Uptown Medical Center Association held its second annual dinner, November 16, in a construction shack; Dr. Louis T. Wright was elected secretary. The association now has more than 600 members.——The Bedford Medical Society held its first scientific meeting, November 15. At the organization meeting, recently, Dr. Edward A. Pinkus was elected secretary of the society. The society was addressed by Dr. William Linder on "Errors and Pitfalls in Acute Abdominal Disease."——Dr. John C. Hemmeter, Baltimore, addressed the ninth meeting of the American Society of Medical History, November 25, at the editorial offices of *Medical Life* on "The Philosophy of History."——The former West Side Clinicians are now known as the Schuyler District Medical Society; Dr. John H. Morrissey is the president for the ensuing year.——Dr. Alvan L. Barach addressed the Medical Society of the County of New York, November 22, on "Significance and Treatment of Oxygen Want in Pneumonia."——The twelfth annual conference of the National Committee for the Prevention of Blindness was held at the Russell Sage Foundation Building, December 1-2.——Dr. William P. Healy, president, Medical Society of the County of New York, gave an address at the dedication of the new building for the Bellevue-Yorkville Health Demonstration, 325 East Thirty-Eighth Street, November 30, on "The County Medical Society in This Demonstration." Among the other speakers were Dr. Linsly R. Williams, director, New York Academy of Medicine, "The Medical Profession and This Demonstration," and Mr. Edward W. Sheldon, president of the Milbank Memorial Fund, "Presentation of the Building."——At the stated meeting at the New York Academy of Medicine, Fifth Avenue and One Hundred and Third Street, December 2, Dr. Allen O. Whipple discussed "Lesions of the Liver Requiring Surgical Therapy"; Dr. Nellis B. Foster, "Diagnosis of Diseases of the Liver with Respect to Tests of Function," and Dr. Douglas Symmers, "Some Aspects of the Pathology of the Liver." Fellows of the academy who desire to present papers before a stated meeting are requested to send the title and a brief abstract of the paper to the chairman of the program committee.

OHIO

Gift to Medicine at Western Reserve.—Robert E. Vinson, LL.D., president, Western Reserve University, Cleveland, announced, November 24, it is reported, a grant of $975,000 from the general education board of the Rockefeller Foundation to be used for advancement in medical work.

Health at Canton.—Telegraphic reports to the U. S. Department of Commerce for the week ending November 20 from sixty-five cities with a total population of about 29,000,000 indicates that the lowest mortality rate (7.1) was at Canton, and that the mortality rate for the group of cities was 12.6. The mortality rate for Canton for the corresponding week last year was 12.8, and for the group of cities as a whole, 12.5.

Children's Hospital Dedicated.—The new Children's Hospital Building of Cincinnati, representing an investment of $1,200,000, was dedicated, November 18, and will be ready for occupancy in the near future. Erected adjacent to the Cincinnati General Hospital, it contains 150 beds and is most modern in equipment and structure, with many novel features in the way of private rooms for special cases. There are a number of memorial beds. The staff will comprise members of the staff of the general hospital and of the faculty of the College of Medicine of the University of Cincinnati.

Personal.—Dr. Harry L. Rockwood, Cleveland, was elected president of the Ohio Society of Sanitariums at the first annual convention, Columbus, November 13, and Dr. Elgie R. Shaffer, Columbus, secretary.——Dr. Edward W. Miskall has been appointed health officer of East Liverpool to succeed Dr. John A. Fraser, resigned, effective, December 31.——Albert P. Mathews, Ph.D., Andrew Carnegie professor of biochemistry, University of Cincinnati College of Medicine, has been elected a member in the "R. Accademia dei Lyncie of Rome, Italy."——Dr. Harlan Dudley, Berea, has accepted a position on the medical staff of the Ohio State University of Columbus.

PENNSYLVANIA

Personal.—Dr. and Mrs. William M. Guilford, Lebanon, observed their seventieth wedding anniversary, November 12. Dr. Guilford, who was 94 years of age, November 28, is said to be the oldest living graduate of the University of Pennsylvania.——Dr. Harry J. Bell, Dawson, was elected to the state senate of Pennsylvania at the recent election.

Moving Pictures of Society Members.—The Dauphin County Medical Society, Harrisburg, has prepared at considerable expense moving pictures of 160 of its members and is attempting to secure pictures of the few remaining members. They will be exhibited at a meeting of the society in the Harrisburg Academy of Medicine, December 7. This undertaking, said to be the first of its kind in the history of medicine, was undertaken largely for its historical value, and after the exhibition has been shown, the pictures will be turned over to the trustees and kept in a vault for five years, when they will be exhibited again, and so on at periods of five years.

Philadelphia

"The Gonophage."—The subject of the essay which won the Alvarenga Prize for 1926 was "The Gonophage" instead of "The Gamophage," as was reported to THE JOURNAL by the secretary of the College of Physicians of Philadelphia. It was a laboratory and clinical study of the bacteriophagic principle elaborated by the gonococcus in culture (THE JOURNAL, November 20).

Obstetric Night.—The program of the Philadelphia County Medical Society, November 24, was devoted largely to obstetrics and gynecology. Dr. James R. Goodall, Montreal, addressed the society on "The Rôle of the Cervix in the Puerperium," and Dr. Frederick C. Holden, New York, "Present Day Gynecology at Bellevue Hospital." The discussion was opened by Drs. Edward A. Schumann and William R. Nicholson.

Physicians and Lawyers Aroused by Useless Noise.—Aroused by the ill effects of unnecessary noise on patients under treatment in their homes and by the effects of noise on

the health of residents generally, the Medico Legal Society of Philadelphia has obtained the support of the Philadelphia County Medical Society, the Physicians' Automobile Club and other organizations in a campaign to stop unnecessary noise in the residential districts. A survey during the last few months is said to have shown the practicability of eliminating much of the noise of the city at night and that the care which is exerted now in the vicinity of hospitals can be extended to other districts. The Medico Legal Society has appointed a committee of physicians and lawyers; business associations have expressed approval of the campaign, and it is expected that some national organizations will assist. The chairman of the committee is Dr. Joseph A. Cramp, 1902 Chestnut Street.

Hospital for Graduate School of Medicine.—Plans made in 1916 for the Graduate School of Medicine of the University of Pennsylvania will be realized on completion of the nine story teaching hospital now under construction at Lombard and Naudain streets. The new hospital, part of the university's general medical expansion program, will accommodate 450 patients. The Lombard Street wing will be largely for private rooms, the second floor being used for eye, ear, nose and throat cases, and the first for offices, a roentgen-ray department and the children's medical service. The operating rooms will be on the ninth floor, and the solaria and loges on the roof. Graduate medical education at the university has developed rapidly since 1916, when a merger was made between the Medico-Chirurgical Hospital of Philadelphia and the university, the former retiring from the field of undergraduate medical education to become an integral part of the latter under the title "Medico-Chirurgical College and Hospital Graduate School of Medicine of the University of Pennsylvania." The Philadelphia Polyclinic and College for Graduates in Medicine merged with the university in 1918, likewise retiring from its type of former instruction and becoming an integral part of the graduate school. Graduate medical instruction has been further amplified by inaugurating extension postgraduate medical courses in the state. Last year more than 300 men enrolled for full-time work in the graduate school. The regular courses are designed for three years' graduate work. The students become practically assistants to members of the faculty in medical work throughout the city. There are seventeen distinct departments covering the specialties, medicine and surgery, biochemistry, anatomy, physiology, pathology, bacteriology, immunology and pharmacology.

TENNESSEE

Personal.—Dr. Joseph F. Hamilton has been appointed to take charge of the clinical laboratory at St. Joseph's Hospital, Memphis. Dr. Hamilton formerly was in the city board of health laboratory, and in the laboratory of the U. S. Veterans' Hospital No. 88.——Dr. Rodney R. Williams has resigned as director of the Memphis Child Guidance Clinic, it is reported.

Society News.—At the sixty-fourth semiannual meeting of the Middle Tennessee Medical Society, Dickson, November 12, Dr. William W. Porter, Springfield, was elected president; Dr. Evander M. Sanders, Nashville, vice president, and Dr. Sam P. Bailey, Nashville, secretary-treasurer, reelected. ——Elizabeth Seeburg, Ph.D., addressed the Memphis and Shelby County Medical Society, November 17, on "Psychology as Used in Medicine." The annual banquet of the society and election of officers will be December 7.

Memphis Clinics.—The Memphis Clinics will be held this year at the Baptist Memorial Hospital, Memphis, December 17, under the chairmanship of Dr. Edward G. Thompson. The tentative program includes addresses by Drs. Andrew Richard Bliss, Jr., dean of the School of Pharmacy, University of Tennessee College of Medicine; Dr. Otis S. Warr, professor of medicine, University of Tennessee, will conduct a clinic, and Dr. John C. Ayres, Memphis, will demonstrate delivery in normal labor with motion pictures. Members of the Memphis and Shelby County Medical Society are invited. The hospital will entertain with a buffet luncheon.

GENERAL

Near East Relief.—This philanthropic organization, incorporated by an act of Congress, is again conducting a campaign to raise funds for the care of orphan children in the Near East. A subscription of $5 a month or $60 a year provides food for one child, and a $100 sponsorship provides treatment and complete care for one year. A certain child will be assigned if desired, and a photograph and story furnished. It is said that through the agency of Near East Relief, more than 132,000 orphan children in the Near East have been given food, clothing, shelter and care; 42,000 cases of blindness have been prevented and a great many lives have been saved. Among many other places, subscriptions may be sent direct to George M. Reynolds, Treasurer, Near East Relief, 37 South Wabash Avenue, Chicago. The campaign committee includes the names of many prominent persons.

Societies Boost Hygeia.—The Calhoun County Medical Society, Michigan, recently ordered 253 subscriptions to *Hygeia*, which will be placed in every school room in the county; in addition, two members of the society offered fifty subscriptions for gifts to friends. The Buchanan County Medical Society, Missouri, recently voted to appropriate $310 from its treasury for the subscriptions to *Hygeia* for the city schools. The women's auxiliary of this society has already placed *Hygeia* in the rural schools. Every teacher in the county now has a subscription to *Hygeia*. An order has just been received from the Women's Auxiliary to the Minnesota State Medical Association for 197 subscriptions to *Hygeia* to be sent to legislators. This is the first state auxiliary to send *Hygeia* to senators and representatives; *Hygeia* has been placed, however, in the hands of legislators by medical societies in New York, Pennsylvania, Wisconsin and Arkansas.

Bootleggers and Ethyl Acetate.—In order to stop the alleged diversion of ethyl acetate (which is a pleasant smelling ester) to bootleggers, the U. S. Treasury Department is considering the establishment of a definite standard for ethyl acetate. The assistant secretary, Lincoln C. Andrews, held a conference with manufacturers in New York, recently, to discuss drafting the proposed regulation. The diversion of ethyl acetate to the illegal traffic in liquor is considered practicable, as merely by adding an alkali to the acetate it is converted into ethyl alcohol. The standard proposed at the conference would require the product to contain not less than 80 per cent of acetate in contrast to the so-called ethyl acetate now on the market, which is said to contain as little as 15 per cent. It was reported that some trade articles such as "lacquers and thinners," some of them made to contain only 10 per cent of ethyl acetate, have been sold to bootleggers in carload lots. Officials and manufacturers, assembled at the invitation of Mr. Andrews, agreed that it would be desirable to restrict the sale of ethyl acetate to ultimate consumers only.

Rush Alumni—Beware of Mr. Fox.—A man claiming to be "Dr. Philip Fox of Wisconsin," a Rush man, recently blew into Houston, Tex., and spent a pleasant evening at the home of our correspondent talking over old times at school. Before leaving, "Dr. Fox" related to his host that he was on his way back to Wisconsin from Los Angeles; his wife and children had tired of the trip by automobile and had taken the train at El Paso. Proceeding from there alone, his car broke down at Hempstead and he came on into Houston not having the money to pay the towing bill. Thereupon, "Dr. Fox" requested his host to loan him $100 so that he could get his car. It is reported that Fox went on to Galveston, and the first thing he did was to look up the names of Rush graduates who practiced in that city. Fox has been reported in THE JOURNAL previously under various names. He is said to be the son of a deceased physician, and appears familiar with affairs years ago at Rush Medical College, with which knowledge he gains the confidence of his victims. He also claimed to be an ex-intern of a prominent Chicago hospital, and an attending surgeon at a Milwaukee hospital. He had a scar on his leg and walked with a slight limp. Fox apparently has been playing this game for years over a large section of the country, belittling a name honored by hundreds of reputable physicians (THE JOURNAL, Sept. 26, 1925, p. 985, and Aug. 14, 1926, p. 496).

Society News.—At the twenty-seventh annual meeting of the Ohio Valley Medical Association, Louisville, Ky., Dr. Emmet F. Horine, Louisville, was elected president; Drs. Daniel N. Eisendrath, Chicago; Robert W. Viehe, Evansville, Ind., and Joseph E. Pirrung, Cincinnati, vice

presidents, and Dr. Justice F. Wynn, Evansville, Ind., secretary-treasurer. The next meeting will be held in Evansville the second Wednesday in November, 1927.——At the recent meeting of the Central States Pediatric Society, October 23, Dr. Otto L. Goehle, Cleveland, was elected president; Dr. Fred Moore, Des Moines, vice president, and Dr. Henry T. Price, 121 University Place, Pittsburgh, Pa., secretary-treasurer.——Dr. Lewis H. McKinnie, Colorado Springs, Colo., has been elected president of the Western Surgical Association for the ensuing year, and Dr. Harry P. Ritchie, 914 Lowry Building, St. Paul, Minn., secretary. The next annual meeting will be in Omaha.——The American Association for the Advancement of Science will meet at the University of Pennsylvania, Philadelphia, December 27-January 1, with headquarters at the Bellevue-Stratford Hotel. Correspondence concerning arrangements of members should be addressed to the general chairman, Clarence E. McClung, Ph.D., Zoological Building, University of Pennsylvania.——At the annual meeting of the Southern Medical Association, Atlanta, Ga., November 18, Dr. John Shelton Horsley, Richmond, Va., was elected president; Drs. Frank K. Boland, Atlanta, and Alfred A. Walker, Birmingham, Ala., vice presidents; Mr. C. P. Loranz, Birmingham, reelected, secretary-treasurer. Dr. Marye Y. Dabney, editor, reelected.

New County Society Presidents.—The following physicians have been elected president of the county medical society indicated:

Dr. George W. Abersold, Short Creek, W. Va., Brooke County Medical Society.
Dr. James M. Beveridge, Oregon, Ill., Ogle County Medical Society.
Dr. Edgar C. Burton, Kingston, Ill., De Kalb County Medical Society.
Dr. Rella U. Cairns, River Falls, Wis., Pierce-St. Croix County Medical Society.
Dr. Howard F. Clark, Stuart, Iowa, Dallas-Guthrie County Medical Society.
Dr. W. S. Davis, Owensville, Ark., Saline County Medical Society.
Dr. J. Horace Farrar, Manchester, Tenn., Coffee County Medical Society.
Dr. Ella Fitch, Ottawa, Ill., La Salle County Medical Society.
Dr. John T. Gibbons, Celina, Ohio, Mercer County Medical Society.
Dr. Maynard C. Harding, San Diego, Calif., San Diego County Medical Society.
Dr. Frederick W. Holcomb, Kingston, N. Y., Ulster County Medical Society.
Dr. William G. Kemper, Manitowoc, Wis., Manitowoc County Medical Society.
Dr. Earl H. King, Saratoga Springs, N. Y., Saratoga County Medical Society.
Dr. Augustus B. Kuhl, Davenport, Iowa, Scott County Medical Society.
Dr. Stanley N. Marsh, West Enfield, Maine, Penobscot County Medical Society.
Dr. Benjamin V. McClanahan, Galesburg, Ill., Knox County Medical Society.
Dr. Isaac C. Munson, Prattsburgh, N. Y., Steuben County Medical Society.
Dr. Henry S. Patterson, New York, N. Y., Medical Society of the County of New York.
Dr. Robert B. Poling, Greenville, Ohio, Darke County Medical Society.
Dr. Malcolm L. Pratt, Bellefontaine, Ohio, Logan County Medical Society.
Dr. Charles A. Prescott, Hudson Falls, N. Y., Washington County Medical Society.
Dr. Charles Rayevsky, Liberty, N. Y., Sullivan County Medical Society.
Dr. Elmer J. Reichley, Herington, Kan., Dickinson County Medical Society.
Dr. Don S. Renner, Skillman, N. J., Somerset County Medical Society.
Dr. Robert J. Reynolds, Potsdam, N. Y., St. Lawrence County Medical Society.
Dr. Edwin A. Riley, Park Falls, Wis., Price and Taylor County Medical Society.
Dr. John P. Roark, Bushnell, Ill., McDonough County Medical Society.
Dr. August F. Routledge, Rome, Ga., Floyd County Medical Society.
Dr. William T. Sherman, Crown Point, N. Y., Essex County Medical Society.
Dr. William A. Smith, Petersburg, Mich., Monroe County Medical Society.
Dr. Earle C. Stevenson, Gothenburg, Neb., Dawson County Medical Society.
Dr. Edward A. Travis, Como, Tenn., Tri-County Medical Society (Benton, Carroll, Weakley).
Dr. Sam P. Wise, Plains, Ga., Sumter County Medical Society.
Dr. LeRoy A. Wylie, St. Petersburg, Fla., Pinellas County Medical Society.

CORRECTION

"Myomectomy, Hysterectomy and Radiotherapy in Fibromyoma of Uterus."—In the paper by Dr. J. C. Masson, on this subject (THE JOURNAL, November 6, p. 1530), the sentence beginning on the twentieth line of page 1531 should read: "During the last five years *sixteen* cases (instead of *ten* cases) of carcinoma of the cervix have been observed at the Mayo Clinic, from three to fifteen years after subtotal abdominal hysterectomy for benign lesions, and *thirteen* cases (instead of *nineteen*) in which it was not possible to determine whether or not malignancy had existed prior to the early operation."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 13, 1926.

Medicine as a Biologic Evil

When Darwin's doctrine of evolution became generally accepted, the danger that medical treatment might, by promoting the survival of the unfit, be injurious to the race was of course perceived. But this objection never seems to have been taken seriously by the leaders of the medical profession, too busily occupied with the prevention and treatment of disease to trouble about what they no doubt regarded as a doubtful corollary. But now no less a man than Dr. A. P. Beddard, physician to Guy's Hospital and lecturer on medicine in the medical school, brings forward strong arguments to show that the practice of medicine is exercising a dysgenic effect on the race. In a paper read before the Guy's Hospital Physical Society and published in *Guy's Hospital Gazette*, entitled "The Rôle of the Medical Profession in Biology," he says that when he was a student the rôle of the profession was almost confined to treating patients when called to do so, and to a certain amount of preventive medicine connected with public health. Since that day the field has been considerably enlarged, and there is reason to think that the process will increase. Much costly medical machinery has been forced on the profession from political and not biologic considerations. What is the total effect on the community? The discovery of insulin is a scientific triumph but a biologic disaster because it tends to perpetuate the hereditary form of diabetes, which otherwise might be eradicated. As a gregarious animal, man is offered the advantage of many varieties, both favorable and unfavorable. Biologically he cannot afford to allow both to breed. The acute infections appear, for all practical purposes, to be nonselective in their action; they attack the strong almost as much as the weak. The invention of antitoxic serum has no biologic drawbacks; a certain cure of syphilis or cancer would do nothing but good; a method of curing malaria, or its prevention by eradicating the anopheles mosquito, would be an enormous blessing to the human race.

He then considers chronic infections to which there is a hereditary liability. The most striking example of this is tuberculosis, which offers one of the greatest conundrums of medicine. The biologic problem here is vastly more complicated than in the case of the acute infections, just because the liability to tuberculosis is so definitely hereditary; nor is there evidence that any race of men possesses a high degree of natural immunity to it. The problem has been attacked both from the preventive and from the curative side with some definite but comparatively mild success. We have done something by reducing the frequency of exposure to tuberculosis, and we have done something by curing the milder cases. We have reduced the deaths from tuberculosis in this generation. But what of the subsequent generations? As a rule, any one who breaks down with tuberculosis is a person who is relatively susceptible to it, and if he is allowed to breed will transmit this high susceptibility. Every patient we patch up or cure, and who breeds, is merely going to add to the conundrum in a succeeding generation. And there is a possibility that they may add to it in an ever increasingly aggravated form, and for this reason: the crossing of more and more of the race with persons who are highly susceptible to tuberculosis may not only increase the number of highly susceptible persons but may do something infinitely worse—aggravate the degree of susceptibility. It seems to Dr. Beddard almost as if any apparent success by our present

methods must in the long run insure failure, possibly in an aggravated form. He thinks that a less harmful treatment would be the active immunization of all children, or at least of all children of known tuberculous parentage, before they become infected. If this could be carried out over a large number of generations, not only would it reduce enormously the number of tubercle bacilli about but in time it might slowly reduce the hereditary liability by transmitting in part an acquired immunity. Dr. Beddard believes that the human race will be driven to attack this question along biologic lines, either by allowing the tuberculous individuals to die off or, as it would seem more likely and better, by saving the tuberculous individual, but for the sake of the race not allowing him to breed.

The third type of disease considered is hereditary degenerative processes—not merely such obvious changes as arteriosclerosis, but those physical defects which make the difference between an "A1" and a "C3" population. That civilized man is degenerating physically seems clear. He has done so before and been replaced by a more savage and strong representative of the human race. The question is, Why is this change taking place? We can prevent it only if we diagnose its cause accurately. By some it is said to be our diet, and in consequence various dietetic stunts are being boomed. By others it is said to be the wear and tear of modern life. The obvious refutation of this view is that the "C3" condition of the population is not shown so markedly in the middle classes, who do live faster than they did, as in the so-called working classes, who certainly are better housed and fed, and work shorter hours, and have more recreation than they used to have. The difference between the physical condition of the middle and working classes Dr. Beddard considers enormous; "it is the difference between a Rolls-Royce and a Ford." Both may be good going concerns, but one rapidly wears out and the other does not; they are different materials, almost different animals. Why? Many hold that the trouble is in the environment in which the working classes are born and bred; in other words, that the solution is to be found in child welfare, better feeding and housing, and unlimited attention by the medical profession at every age and juncture. That these measures are of some value to the individual is undeniable. But the question is, Is environment the whole or chief cause of race deterioration? If so, then acquired characteristics must be hereditary. Most biologists think that they are not. So far as Dr. Beddard can see, there is no evidence that all the money and attention expended have produced any effect other than bringing increased comfort to the individual, as opposed to increased vigor and soundness to the race. If environment is not the cause, then we have to look to some inherent hereditary defect; Dr. Beddard suggests that promiscuous breeding (panmixia) leads to deterioration of the stock down to the lowest level of those breeding. This is true of domestic animals, and there is no reason why it should not be equally true of civilized man. If so, then it follows that the only way to get a healthy, strong race is, in the first instance, to breed it; and having bred it, then by all means take care of it and keep it well. But to breed a race of inferior material, and then by lavishing care on it to expect it to be strong, is to shut the stable door after the horse has bolted. One might just as well expect to find some magician's wand which would convert Ford cars into Rolls-Royces. That we are being populated from below and that the medical profession is being used to aid the process is obvious. The profession and the hospitals do much to relieve individual human suffering. But we are also a gigantic institution for keeping the unfit alive and therefore breeding a deteriorating race. Neither the medical profession, as a whole, nor much less the general public, has an inkling of this biologic fact. There are some who think that on the material side civilized man is tottering to his fall. To Dr. Beddard there appear indications that he is doing so on the physical and nervous side. This would be a shocking state of affairs if there were no way out of it; all the more shocking in the face of the increasingly great struggle for existence which the future appears to hold in store for every race. Eugenics, birth control and many other similar subjects demand just as great attention as attempts to find a cure for cancer or tuberculosis. In the long run, says Dr. Beddard, biology will become more important than pathology.

Finally, he compares the biologic results of four types of breeding: a gregarious animal in nature; man as he now is; that associated with eugenics, and that advocated by those who preach birth control either by contraception or by voluntary abstinence. A gregarious animal in nature breeds promiscuously; that is, all members breed. This insures an ample supply of variations, good, bad and indifferent. This material is then rigidly selected by nature, and then the selected breed. In short, it is promiscuous breeding of naturally selected material that insures variability, but at the same time a well maintained physical standard. Man, as a gregarious animal, breeds promiscuously with an ample supply of variations, good, bad and indifferent; but for civilized man, increasingly successful efforts are being made to prevent any natural selection whatever. Consequently we have promiscuous breeding of unselected material which insures variability with the progressive physical deterioration. The breeding advocated by eugenics and practiced by stock breeders is confined to artificially selected stock. This sacrifices variability, but secures a well maintained physical standard, but of a more uniform type than is found in nature. The modern method of birth control would entail promiscuous breeding with a restricted output of variations, good, bad and indifferent. This restricted supply of material would undergo no selection whatever. In other words, it would be the promiscuous breeding of unselected material with the necessary progressive physical deterioration, but without even the slight advantage of ample variations. Surely this would be race suicide with a vengeance.

The Celebration of the Lister Centenary

A committee to celebrate the centenary of Lister's birth has been formed in Edinburgh. As the annual meeting of the British Medical Association will be in that city, it has been decided to make the celebration coincide with it. A prize of $125 and a gold medal will be offered for the best essay on "The Influence of Lister on the Evolution of Surgery." The competition will be open to medical students of the schools in the British Empire and graduates of not more than one year's standing. A book on Lister's life and writings is being prepared. Addresses will be given by Lister's old assistant, Sir William Watson Cheyne; Professor Tuffier, Paris; Dr. Harvey Cushing, Boston; Professor Caird, Edinburgh, and Mr. Hamilton Russell, Melbourne. A museum containing relics of Lord Lister's life and work is being formed.

Case of Smallpox in a London Hospital

A woman was admitted to the Royal Northern Hospital for abdominal trouble, but shortly after admission it was found that she was suffering from smallpox, and she was removed. The patient was at once isolated and every precaution taken for the protection of all the patients, visitors and staff. This was done under the supervision of the officials of the ministry of health and the local authorities, in conjunction with the medical staff of the hospital. The infection of the patient is traced to Paris at the latter end of September. This is the fourth case of the present outbreak in London.

PARIS

(From Our Regular Correspondent)

Nov. 3, 1926.

The Medical Convention at Montpellier

Montpellier, the seat of one of the oldest universities of France, which conferred on Rabelais his title of doctor, decided to have its *journées médicales* as well as Paris. Its convention was accordingly held, November 4-6, under the chairmanship of Professor Ducamp, coincidently with the centenary of the discovery of bromine by Jérome Balard, a chemist of Montpellier. The convention brought together a large number of medical men belonging chiefly to the region round about, together with a few physicians from Spain and Italy. The three principal papers were presented by Professors Forgue, Hédon and Perroncito. The army medical service had a display of ambulances, equipment for the transportation of wounded, and, more particularly, sanitary airplanes, similar to those exhibited in Paris last July.

Second Annual Meeting of the International Bureau of Public Health

The International Bureau of Public Health held its second annual session in Paris, October 20-30, under the chairmanship of M. O. Velghe, the delegate from Belgium. This organization was created Dec. 9, 1907, in accordance with an agreement signed at Rome, by forty-three countries, contributions from which support it. Its chief purpose is to bring to the knowledge of the constituent countries facts and documents of a general nature that pertain to public health, and particularly matters concerning epidemic infectious diseases—notably, the plague, cholera and yellow fever, together with the measures adopted to combat these diseases. It does not interfere with the administration of the different countries, and is independent of the country in which the headquarters are located. The present director is Dr. Pottevin, professor at the Pasteur Institute.

This organization is entirely distinct from the health section of the League of Nations. However, the two organizations are in communication with each other and exchange documents as occasion arises. It was proposed, a while ago, that the two organizations be merged, but several governments—among others, the United States—were opposed to such a merger.

The recent session brought together the representatives of the forty-three associated countries. Germany and Austria were not represented, as they have not accepted the agreement of Rome. The representative of the United States was Surg. Taliaferro Clark of the Public Health Service, who took the place of the regularly appointed incumbent, Surg. Gen. Hugh S. Cumming. The main object of the recent session was the discovery of practical means for carrying out the new international sanitary convention. This important document has not yet been made public. This convention, signed at Paris, June 21, 1926, by the official delegates of the forty-three contracting nations, and also by Germany and Austria, attributes to the international bureau the new duty of supplying prompt and exact information on the appearance and spread of diseases with reference to which international measures have been adopted. The bureau will cooperate, in this connection, with other international organizations, such as the health section of the League of Nations; the bureau of sanitary information for the Far East, located at Singapore, and the Pan-American sanitary bureau in Washington. It will communicate by telegraph (its communications enjoying the same priority as state dispatches) with the various governments and their sanitary organizations, which will be ready to respond to its demands for information, especially as regards matters pertaining to the carrying out of quarantine measures. The bureau will be obliged to increase its office facilities to take care of all this documentation. It is planned to secure new headquarters where it could work in common with the International Bureau of Epizootics, which is being organized.

The new international sanitary convention of June 21, 1926, which will soon be made public, contains decisions of importance for the unification of measures to prevent the spread of cholera, plague, yellow fever, typhus and smallpox. It will deal with the issuing to vessels of certificates of health; with disinfection of vessels and the extermination of rats; with the sanitary control of frontiers; with sanitary surveillance of pilgrims, and, more particularly, of the Suez Canal.

A High Altitude Station for Children

At Villard-de-Lans, in the mountains of the department of Isère, the first high altitude station in France has been established. The station is located 1,400 meters above sea level. In a region much frequented by tourists, groups of detached villas have been erected for weak and convalescent children. The municipality will not admit a child with a contagious or infectious disease. Tuberculous persons of all ages will be excluded.

Increase in Cases of Lead Poisoning

The crusade against lead poisoning has entered on a more intensive stage. Cases of lead poisoning have been becoming more numerous among workmen in industries in which they handle lead. Algerian and Moroccan workmen are most affected, since they cannot be induced to observe precautions. Medical services in factories have added, to their ordinary means of clinical investigation, examinations for nucleated red blood cells. Several cases of lead poisoning have been reported from Brittany, in the regions of Vitré and St. Malo, and were due to water pipes of lead that recently had been installed. The water of the region is poor in lime salts but rich in silica. Under these conditions, the interior of the lead pipes remains unaffected, and soluble lead compounds may form. In Paris, most of the water pipes are of lead, but the water is rich in lime salts, so that a deposit of lime is soon formed and covers the lead. Therefore, cases of lead poisoning due to water pipes have not been observed in Paris.

The Use of Ultraviolet Rays

Ultraviolet rays from the mercury vapor lamp, passing through nickel oxide glass, are being widely used. The characteristic fluorescence that they produce in certain bodies helps to establish various diagnoses. They are utilized also in the trades and industries, and even by the administration of the food and drug act to detect the presence of impurities or adulterants; for example, bismuth salicylate in sodium salicylate, or procaine hydrochloride in stovaine. M. Joseph of Strasbourg uses ultraviolet rays to illuminate histologic sections and to localize various substances in the tissues. He was able to demonstrate that sodium salicylate is retained in the joints and, particularly, in the superficial layers of the cartilage. Quinine lodges in the spleen, and under the influence of ultraviolet rays becomes fluorescent. Professor Reynès of Marseilles subjected to these rays various calculous concretions that had been previously sawed in two. Gallstones composed of cholesterol remain colorless, but urate, phosphate and uric-acid calculi take on, depending on the age and the density of the sedimentary layers, various colorations, becoming yellow, pale violet, light brown, chestnut or yellowish white. A lime-phosphate stone found within a uterine fibroma showed fibrous whirls and arabesques of a brilliant silvery tint.

BELGIUM

(From Our Regular Correspondent)

Oct. 12, 1926.

The Crusade Against Quackery

Before the Congress of Professional Medicine, recently held in Louvain, M. Brandligt discussed medical charlatanism. As a result of the crusade against it, medical advertising in the daily press has been almost entirely suppressed. Other aspects of the campaign have been less successful, doubtless because an appeal was made to the central government. It appears preferable to rely for progress on the activities of the medical organizations, leaving it to the government to confirm the results. New forms of quackery are appearing every day, a recent manifestation being the cult termed "chiropractors," which is of American origin. The character of responses received to the questionnaire sent out shows how few physicians know the great number and the wiles of charlatans who surround us on every hand. Brandligt points out that the province of Hainaut especially is overrun with charlatans. Some medical committees in the provinces have coped successfully with the charlatans.

He recommended the appointment of a special committee on charlatanism from among the members of the Belgian Medical Federation. The committee might be composed of delegates of local committees on charlatanism. Such a committee would have the task of planning a uniform campaign against charlatanism and would render an annual report to the Congress of Professional Medicine. It would have the complete support of the Belgian Medical Federation. Advertising by physicians should continue to be prohibited, and physicians who allow others to practice under their names should be excluded from membership in the medical societies.

An understanding between physicians and druggists should be reached in order to do away with abuses, such as the furnishing of drugs without a physician's prescription. The bulletin of the federation and the medical journals should be ready to publish full accounts of the activities of the medical committees against the charlatans and of all convictions secured. Following the discussion, the congress passed the following resolutions: (1) A committee on charlatanism shall be instituted either among the members of the Belgian Medical Federation or under its control; (2) the executive committee of the federation shall consider with such committee on charlatanism the best means of combating quackery as practiced in the institutes and pseudo-institutes, particularly with the aid of physicians who allow, for a consideration, their names to be used by pretentious quacks, and (3) the executive committee of the federation shall adopt all possible means to secure the aid of the public authorities in the prosecution of the campaign.

An Order of Physicians

The question of founding an order of physicians has again come up. It was at the Congress of Professional Medicine held in Louvain that the subject was reopened by Dr. Van Langendonck. He expressed the view that an order of physicians should deal only with ethical questions and not with financial or economic problems. He recommended that an order of physicians should be organized as entirely distinct from the *"unions professionnelles"* and that it should be a creation of the provincial medical committees; that is to say, official bodies having a legal existence and power conferred by the central government. It was on the basis of these principles as expressed by the author that the congress passed the following resolutions:

The Congress of Professional Medicine, while affirming that the "unions professionnelles" should continue to exist with all their present prerogatives, recommends that an order of the medical professions be established.

The order should extend its jurisdiction over medicine and the allied professions. The competence of the order of medical professions should be derived from the law pertaining to the practice of the art of healing.

The scale of penalties should include not only notice, censure and suspension for a given term, but also expulsion. In all cases in which expulsion, temporary or final, shall be imposed, the person affected shall have the right to carry the case to the court of appeals.

A new independent organization should be created, the executive power of which should lie in the provincial medical committee.

In order that these resolutions may go into effect, their text shall be transmitted to the following constituent bodies: Academy of Medicine, the Superior Council on Public Health, and the upper and lower houses of parliament, with the request that these bodies, assisted by delegates of the medical profession, shall work out a plan by which these resolutions may become codified and made effective.

Antimeningococcus Vaccination

In connection with a study tour to Karanga, the Belgian Congo, Professor Bruynoghe had an opportunity to observe a rather extensive epidemic of cerebrospinal meningitis among the workmen employed by the Union Minière. The epidemic was brought under control by antimeningococcus vaccination. In reporting the matter to the Société belge de biologie, Bruynoghe pointed out that antimeningococcus vaccination constitutes therefore an excellent prophylactic measure in this disease.

Antidiphtheritic Vaccination in Belgium

Addressing the Société scientifique de Bruxelles, M. Bessemans stated that, since 1921, he had endeavored to produce an active immunization in several thousand Schick-positive subjects. He used as vaccine the toxin-antitoxin mixture prepared by the Park method and the anatoxin of Ramon. The former has the disadvantage that it sometimes fails to act and must be prepared and kept with the greatest care. The anatoxin is objectionable for the reason that it produces too violent local reactions. The author affirms that antidiphtheritic vaccination by means of the highest quality of toxin-antitoxin mixture is by no means dangerous and confers a genuine immunity in from 85 to 90 per cent of the persons inoculated, as tested at the end of six months. Furthermore, immunization by means of toxin-antitoxin desensitizes the majority of persons with hypertension against common proteins, whereas only from 12 to 15 per cent of normal subjects are thus desensitized.

The Schick Reaction

M. Bessemans communicated his observations on the application of the Schick test in Belgium, during the years 1921-1924, which cover the results in 5,482 cases. The Schick test was positive in 44.05 per cent of the cases. The percentage varied considerably with the region. In the poor and congested sections there was the largest number of negative reactions (as high as 89.1 per cent as against 20.89 per cent in the well-to-do sections). The author confirms the theory of Zingher, who states that, in the matter of diphtheria, the daily contact resulting from overpopulation and defective hygienic conditions plays an essential part in the development of natural immunity.

After-Care of Dismissed Inmates of Psychopathic Institutions

Dr. Vervaeck has presented a study which shows the need of after-care for large numbers of convalescent or cured psychopaths. The Société de médecine mentale has confirmed his view by passing a resolution in which it emphasizes that it has always held that the mental and social interests of patients should be kept in view after their dismissal from institutions. The society passed a further resolution that there be organized in the principal psychopathic institutions of Belgium aid societies for the benefit of the mentally ill, under the chairmanship and direction of the chief physician of the institution. Each aid society must be self-governing

and independent, but it is desirable to combine the societies in a central organization placed under the auspices of the League of Mental Hygiene and the royal commission on patronage.

BERLIN

(From Our Regular Correspondent)

Nov. 6, 1926.

Modifications in Berlin Medical Organizations

In addition to the Aerztekammer, or "chamber of physicians," the members of which are selected according to state law, and the transactions of which are accordingly under state supervision, the medical profession of Berlin, about ten years ago, created a new society called the Gross-Berliner Aerztebund, or the physicians' league of Greater Berlin. This league is affiliated with the Deutscher Aerztevereinsbund, which is a federation of practically all German medical societies. Serving in the capacity of an economic department of the Deutscher Aerztevereinsbund, there is another large German medical organization, the so-called Leipziger Verband, or Leipzig league. This league is, in turn, composed of state, provincial and local groups. Whereas the jurisdiction of the Gross-Berliner Aerztebund, as the name indicates, extends to all the areas of Greater Berlin, the jurisdiction of the Leipziger Verband covers only the old communes which occupy the central area of the present-day metropolis, the physicians of the outlying districts still belonging to the Brandenburg chapter. Also in other respects, the juxtaposition of the two large societies has resulted in misunderstandings. After two years of preliminary discussion and deliberation, a general assembly of the Gross-Berliner Aerztebund was recently held, at which a change in its constitution was voted which made it possible for it to be, at the same time, the Berlin provincial league of the Leipziger Verband. A short time later, an assembly of the central Berlin branch of the Leipzig Verband passed a resolution that it should cease to exist as soon as the new constitution of the Gross-Berliner Aerztebund was accepted by the judge having jurisdiction.

Increase of Multiple Births Since the War

According to an article by F. Prinzing, the medical statistician, of Ulm, the number of multiple births, calculated on the basis of 1,000 legitimate births in the German *reich*, rose, in 1919, to 14.0, whereas, before the war, the number had fluctuated between 13.0 and 13.4, having reached as high a value as 13.7 in 1916. In 1920 it was 13.5, and in the succeeding years it dropped below 13.0. The rate for 1919 (14.0) excels therefore all other values before and since the war. For purposes of comparison, Prinzing cites statistics of various single German states and of foreign countries. In Bavaria, Wurtemberg, France, Italy, Scotland and Hungary, corresponding fluctuations at the close of the war were observed; in Switzerland there was a suggestion of the same conditions (a lower but more extended wave crest between 1918 and 1922); in the Netherlands, however, and, for some peculiar reason, in Saxony, similar manifestations did not occur. In further discussion of the subject, the author cited French statistics on the age of the parturients, the distribution of multiple births among the various age groups, and the fluctuations of the excess of male over female births in Germany in the period from 1911 to 1923. As probable causes of the phenomenon may be mentioned: decrease of spontaneous miscarriages, for the reason that the care given to pregnant women was good, and (presumably) an increase in the percentage of older women among the parturients of 1919. Hence, it seems that external conditions were the deciding factors—in fact, much the same conditions that determined the increase of male births over female births.

Marriages

WILLIAM SATTERLEE LEAVENWORTH, Lieutenant Commander, M. C., U. S. Navy, to Miss Lillian Le Sieur of Los Angeles, November 15.

JOHN BUTLER FAISON, Manasquan, N. J., to Miss Mary Elizabeth Murphy of Clarke County, Va., October 23.

ERNEST MALCOLM WILKINSON, Welch, W. Va., to Miss Addie May Johnson of Parksley, Va., October 30.

CONSTANCE AUGUSTA O'BRITIS, Wilkes Barre, Pa., to Mr. Balys F. Mastauskas of Chicago, September 6.

JOHN CHURCHILL ROBERTSON, Salem, Va., to Miss Margaret Booth Heindl of Richmond, October 20.

ROBERT KAPSINOW, New Haven, Conn., to Miss Sadie Ethel Kahn of New Orleans, November 21.

Deaths

James Robbins Bean, Jacksonville, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1911; member of the Florida Medical Association and the American Society of Bacteriologists; on the staff of the Samaritan Hospital, Philadelphia, 1912-1913; bacteriologist to H. K. Mulford Company, Glenolden, Pa., 1913-1915, and to the state board of health, Jacksonville, Fla., 1915-1917; director of laboratories, Jefferson County (Ala.) Board of Health, 1917-1924; director of laboratories, and assistant to health officer, Savannah, Ga., 1924-1925; since 1925 senior bacteriologist to the laboratories of the Florida State Board of Health; served during the World War; aged 37; died, October 27, at the Walter Reed Hospital, Washington, D. C., of brain tumor.

John W. Brodnax ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1892; associate professor of anatomy at his alma mater; member of the American Association of Anatomists; coroner of Richmond; author of works on anatomy; aged 62; died, October 20, of angina pectoris.

John A. Wesener ⊕ Chicago; College of Physicians and Surgeons, Chicago, 1894; formerly professor of chemistry at the University of Illinois College of Medicine, Chicago; president of the Columbus Laboratories; aged 61; died, November 18, of cerebral hemorrhage.

Charles Lee Codding, Duluth, Minn.; University of Pennsylvania School of Medicine, Philadelphia, 1883; for twelve years member of the board of education; aged 69; died, November 5, of inanition due to spasm of the esophagus.

Edward N. Redden ⊕ Chicago; Illinois Medical College, Chicago, 1909; formerly professor of surgery, Loyola University School of Medicine; at one time on the staff of St. Elizabeth's Hospital; aged 47; died, May 19, of myocarditis.

John Meredith Bonds, Bessemer, Ala.; University of Nashville Medical Department, 1906; member of the Medical Association of the State of Alabama; aged 47; died, November 9, at a local hospital, following an operation for appendicitis.

Albert Godfrey Bennett, Greenwich, Conn.; L.R.C.P., Ireland, and L.R.C.S., Ireland, 1908; member of Connecticut State Medical Society; bacteriologist for the Greenwich Health Department; aged 50; died, November 9, of pneumonia.

Louis Martin Jacobs, Philadelphia; Temple University Department of Medicine, Philadelphia, 1921; member of the Medical Society of the State of Pennsylvania; aged 30; died, November 1, at the Mount Sinai Hospital, of meningitis.

Charles B. Saunders ⊕ Chicago; National Medical University, Chicago, 1896; Harvey Medical College, Chicago, 1897; Dunham Medical College, Chicago, 1899; aged 61; died, November 9, of chronic nephritis and myocarditis.

William R. Baker, Nashville, Tenn.; Meharry Medical College, Nashville, 1893; formerly instructor in hygiene and toxicology at his alma mater; aged 59; died, October 18, at the Hubbard Hospital, of pyelitis.

George Washington Jobe, Wagoner, Okla.; Marion-Sims College of Medicine, St. Louis, 1897; member of the Oklahoma State Medical Association; aged 53; died, September 3, of hemorrhage of the stomach.

⊕ Indicates "Fellow" of the American Medical Association.

William Edward Fox, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; aged 46; died, October 13, at the Milwaukee General and Maternity Hospital, of heart disease.

Theodore Knapp Tuthill, New York; Medical Department of the University of the City of New York, 1875; aged 78; died, October 25, of ileus, following an operation for stricture of the sigmoid.

Archibald McClure Gilbert ✠ Amsterdam, N. Y.; Albany Medical College, 1895; on the staffs of the Amsterdam City and St. Mary's hospitals; aged 58; died, November 7, of heart disease.

Samuel Hunter Austin, Lewisburg, W. Va.; Medical College of Virginia, Richmond, 1866; Confederate veteran; aged 86; died, November 16, at a hospital in Charleston, of pneumonia.

Ewald Herman Angermann ✠ San Francisco; College of Physicians and Surgeons of San Francisco, 1917; aged 38; died, September 18, at St. Joseph's Hospital, of cirrhosis of the liver.

Frank Millard Gowdy ✠ St. Joseph, Mich.; University of Michigan Medical School, Ann Arbor, 1891; member of the state board of health; aged 58; died, November 12, of heart disease.

James McArthur Griffin, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1921; aged 34; died recently, of streptococcus infection and pneumonia.

George Wells Burch ✠ Watersmeet, Mich.; College of Physicians and Surgeons, Keokuk, Iowa, 1890; aged 64; died, August 17, at Marshalltown, Iowa, of heart disease.

O. Victor Limerick, New York; College of Physicians and Surgeons, Baltimore, 1893; aged 54; died, May 11, at the Harlem Hospital, of angina pectoris.

George W. Hauenstein, Elkhart, Ind.; University of Illinois College of Medicine, Chicago, 1893; aged 60; died, November 8, of a streptococcus infection.

Dwight Alphonso Richardson, Derby, Conn.; Yale University School of Medicine, New Haven, 1881; aged 68; died, July 13, of cerebral hemorrhage.

Elizabeth Bacon Telford, Jamestown, Calif.; Indiana University School of Medicine, Indianapolis, 1911; aged 39; died, November 10, of acute nephritis.

Edwin H. Koivupalo, Hancock, Mich.; University of Minnesota Medical School, Minneapolis, 1895; aged 55; died, October 12, of cerebral hemorrhage.

Samuel H. Allen ✠ Salt Lake City; College of Physicians and Surgeons, Baltimore, 1890; aged 64; died, August 30, of carcinoma of the pancreas.

Leonard Brown Clark ✠ Waverley, Mass.; Medical School of Harvard University, Boston, 1889; aged 64; died, October 29, of coronary sclerosis.

J. H. Powell, Boise, Idaho; Curtis Physio-Medical Institute, Marion, 1893; aged 85; died, April 22, at the Idaho Soldiers' Home, of senility.

Charles Beall Waggener, Arbuckle, W. Va.; Louisville Medical College, 1875; aged 76; died, July 3, at Point Pleasant, of heart disease.

Lucien P. Ensign, Arborville, Neb.; Medical Department of the University of the City of New York, 1872; aged 75; died, October 14, of pneumonia.

James R. Miller, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1878; aged 72; died, October 27, of heart disease.

Cecil Orestes Freel, Murray, Iowa; College of Physicians and Surgeons, Keokuk, 1897; aged 57; died, November 7, of pernicious anemia.

Robert Wilson Allison ✠ Wilkinsburg, Pa.; Jefferson Medical College of Philadelphia, 1886; aged 67; died, October 27, of angina pectoris.

Louis H. Clampit, Jacksonville, Ill.; Hospital College of Medicine, Louisville, 1884; aged 66; died, November 2, of chronic nephritis.

Gilbert T. McDougall ✠ Fond du Lac, Wis.; Milwaukee Medical College, 1900; aged 54; died, October 18, of chronic nephritis.

David Cottrell, Chicago; Rush Medical College, Chicago, 1897; aged 59; died suddenly, November 11, of heart disease.

James A. Jackman, Dawson, Okla.; Barnes Medical College, St. Louis, 1905; aged 62; died, November 6, of heart disease.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

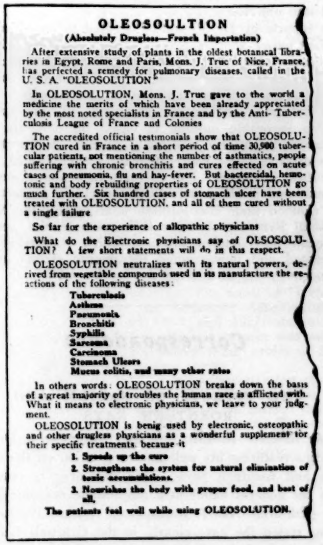
OLEOSOLUTION NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Oleosolution, according to the Nizza Laboratories, Inc., Chicago, is a "New therapeutic agent" which is "Made in France By Special Process of J. Truc" and which is "Used with Great Success as Basic Treatment in Cases of TUBERCULOSIS—CHRONIC BRONCHITIS—GRIPPE—PNEUMONIA—ASTHMA." It is to be administered orally, by intratracheal injection, by rectum and applied externally.



OLEOSOULTION

(Absolutely Drugless—French Importation)

After extensive study of plants in the oldest botanical libraries in Egypt, Rome and Paris, Mons. J. Truc of Nice, France, has perfected a remedy for pulmonary diseases, called in the U. S. A. "OLEOSOLUTION"

In OLEOSOLUTION, Mons. J. Truc gave to the world a medicine the merits of which have been already appreciated by the most noted specialists in France and by the Anti-Tuberculosis League of France and Colonies

The accredited official testimonials show that OLEOSOLUTION cured in France in a short period of time 30,980 tubercular patients, not mentioning the number of asthmatics, people suffering with chronic bronchitis and cures effected on acute cases of pneumonia, flu and hay-fever. But bactercidal, hemotonic and body rebuilding properties of OLEOSOLUTION go much further. Six hundred cases of stomach ulcer have been treated with OLEOSOLUTION, and all of them cured without a single failure

So far for the experience of allopathic physicians

What do the Electronic physicians say of OLSOSOLUTION? A few short statements will do in this respect.

OLEOSOLUTION neutralizes with its natural powers, derived from vegetable compounds used in its manufacture the reactions of the following diseases:

Tuberculosis
Asthma
Pneumonia
Bronchitis
Syphilis
Sarcoma
Carcinoma
Stomach Ulcers
Mucus colitis, and many other rates

In others words. OLEOSOLUTION breaks down the basis of a great majority of troubles the human race is afflicted with. What it means to electronic physicians, we leave to your judgment.

OLEOSOLUTION is benig used by electronic, osteopathic and other druglcss physicians as a wonderful supplement for their specific treatments because it

1. Speeds up the cure
2. Strengthens the system for natural elimination of toxic accumulations.
3. Nourishes the body with proper food, and best of all.

The patients feel well while using OLEOSOLUTION.

The following complex, indefinite and essentially meaningless "formula" is furnished for Oleosolution:

"Vegetable Essences: Thymus Vulgaris, Thymus Serpyllum, @ @ 50 gr. — Eucalyptus Globulus, Malaleuca Lencadendron, Salvia Sclarea — @ @ 100 gr.

"Vegetable Organic Mineral Salts: Smilax Officinalis, Quercus Robur, Urtica Urens, Glecoma-Hederacea, Abies Pectinata, Fucus Vesiculosus, — @ @ 200 gr.

"Vegetable Chlorophylls, Waxes, Ferments, Vitamines: Caulis, Apium Petroselinum, Racomus Cerosus, Pomum, — @ @ 150 gr.

"Oleum-Olivarum, 10,000 gr."

In the advertising it is stated that the plants used "in the manufacture of OLEOSOLUTION, come from the regions where the best conditions of climate, soil, atmosphere and chemical effects of the sun rays can be found" and "Plants used in preparation of OLEOSOLUTION have been gathered at the height of their vital strength, carefully chosen and are utilized under such conditions that all healing qualities of the live plants are preserved in their essential oils, ferments,

vitamines, mineral substances and chlorophylls, which are the essential parts of OLEOSOLUTION."

From the available evidence it would appear that Oleosolution can be of little, if any, value in the treatment of tuberculosis. It is a needlessly complex mixture apparently consisting of a large number of plant extracts dissolved or suspended in olive oil. Some of these extracts have recognized although limited value as tonics for stimulating the appetite. The preparation might have a slight favorable effect in tuberculosis on this ground, but it would be very slight and nothing of practical value would be achieved in the way of lung sterilization or "neutralization of toxins" of the tubercle bacillus on tracheal insufflation. The preparation might be of some value as a stimulant of the bronchial mucosa and expectorant, and therefore aid in clearing up the associated bronchitis, but simpler preparations would be equally effective in this respect.

The advertising of the Nizza Laboratories, Inc., for Oleosolution is quite unconvincing. The statements that the oils were obtained from plants at the height of their vital strength and from regions where the best chemical effects of the sun are found, have no meaning. The testimonials are no better than the thousands of others which have been submitted in support of hundreds of other tuberculosis remedies that have passed into oblivion.

Case reports by Dr. Rosenthal (stated to have been taken from *Le Courier Medical* [Paris], No. 20, September 20, 1925) are submitted, but these appear to have no particular significance. Favorable action in five cases is recorded; this is too small a series to mean anything in tuberculosis. A testimonial by Dr. J. H. Gratton is offered. By his own statement his favorable opinion is based on only six months observation; an utterly inadequate period. A report by Dr. Barbier of Nice (*Le Courier Medical* [Paris], No. 35, September 20, 1925) is offered. This contains many vague, unscientific statements and is altogether without scientific support.

The Council finds Oleosolution unacceptable for New and Nonofficial Remedies because it is an indefinite, semisecret and needlessly complex mixture which is marketed with exaggerated and unwarranted therapeutic claims and in a way to lead to its ill advised use by the public.

Correspondence

THE EFFECTS OF RADIUM AND ROENTGEN RAYS

To the Editor:—In THE JOURNAL, November 6, Dr. A. U. Desjardins reaffirms his well known position on the effect of radium and roentgen rays. This discourse is reactionary against the general belief in a physiologic response to irradiation (Editorial, *Am. J. Roentgenol.*, August, 1924).

Ewing stated the case clearly in the Caldwell Lecture of 1925 when he said that if direct action had been depended on, radiation therapy would have come to an end years ago when Francis Carter Wood showed that it required seven times the erythema dose to kill certain mouse cancers in vitro.

Again, Murphy of the Rockefeller Institute inadvertently experienced the same result. This led him to investigate the subject extensively. He exposed a cancer culture to massive doses of roentgen ray every five weeks for a year and a half, then to find only a transitory interference with growth when it was grafted. On the other hand, he found a drop from 80 to 20 per cent of takes when the intended site of the graft was irradiated.

Further, the late Professor Opitz, successor to Krönig at Freiburg, who was the father of the carcinoma dose idea, seeing the failure of this practice, undertook some biologic experiments which reveal the physiologic response in a definite and conclusive fashion.

When the exponents of the direct action idea establish a particular susceptibility of tumor tissue to direct irradiation, they then will have something on which to build. What they do now is to take the commonly accepted destructive effect of irradiation to all tissue and jump to the conclusion that it is much more selective for tumor cells. This assumption is entirely unwarranted and, according to my convictions, fallacious.

C. F. CHARLTON, M.D., Pasadena, Calif.

"MENACE OF THE SLIGHTLY POSITIVE WASSERMANN TEST"

To the Editor:—The article on this subject by J. H. Mitchell (THE JOURNAL, Oct. 23, 1926, p. 1351) is worthy of further comment. I wish to state my entire sympathy with the major thought of the paper; but only one side has been presented.

The chief problem hinges around the physician whose business it is to interpret the Wassermann report. A large proportion of practicing physicians are not sufficiently versed in serology to evaluate a laboratory report properly. It is certainly not the fault of the serologist if the physician's lack of training, ambition or energy precludes the proper evaluation of a report, or if lack of proper background makes impossible a realization of the limitations of laboratory procedure. It is not the fault of the serologist if the physician has gone so far astray and has become so lazy as both to allow and to welcome the laboratory to make his diagnoses for him. As a biologic science, medicine is constantly approaching precision as a limit, but that limit will never (in the light of present knowledge) be approximated. In other words, the evaluation of disease processes in terms of absolute degree is a concept never likely to be attained. It is unfortunate that many of the profession desire and expect an absolute report from the laboratory. A laboratory report should seldom, if ever, be put out with the idea that it is final or absolute in its significance. With perhaps the exceptions wherein the actual etiologic agent is demonstrated (e. g., tubercle bacillus, or plasmodium of malaria) the laboratory records are at best only a portion of the picture—sometimes of meager, again of tremendous, importance. Even in the specific examples cited, one must differentiate between "infection" and "disease."

This brings us to the point referring to the alarming increase in syphiliphobes engendered by the handing out of "weak positive Wassermanns" by laboratories. My laboratory never submits any report to the patient unless (and this rarely) the physician expressly orders that this be done. Even if the pathologist is also a physician, he should never voice an opinion to the patient. If it is in order, he should take up his ideas with the physician in charge of the case. There is no disgrace in lack of knowledge along certain specialized lines of medical practice; on the other hand, it seems difficult to understand why the physician should consider it any sacrifice of dignity to make inquiry from proper sources on questions which may perplex him. If it would appear too condescending for a physician to seek help from a laboratorian, there should be some one in the profession available and able to give the specialized information demanded. It is the highest type of physician, the one least likely to need any little help which the laboratory expert might offer, that actually makes use of him.

Obviously 100 or 10,000 "4 plus" reports from an unreliable source may have no more significance than a "weak positive." With standardized technic, such as the Kolmer, and well trained and conscientious workers, much of the unreliable work can be weeded out. This is a matter for adequate supervision and examination by some well constituted body.

W. W. REICH, PH.D., Berkeley, Calif.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DETERMINATION OF CALCIUM AND PHOSPHORUS IN BLOOD

To the Editor:—Will you kindly let me know the latest technic in quantitative determination of calcium and phosphorus of blood plasma?

K. YARDUMIAN, M.D., Pittsburgh.

ANSWER.—In the determination of calcium and phosphorus in the blood it is best to use serum. The oxalated plasma employed for most blood determinations cannot be used, as the calcium has been precipitated by the oxalate. It may be used for the inorganic phosphorus, but serum is preferable. Kramer and Tisdall (*J. Biol. Chem.* **47**:475 [Aug.] 1921) were the first to suggest an accurate microchemical method of determining calcium directly in the serum. Tisdall (*J. Biol. Chem.* **56**:439 [June] 1923) has still further simplified the method. Clark (*J. Biol. Chem.* **49**:487 [Dec.] 1921) has likewise described an accurate microchemical technic for calcium. During the present year Roe and Kahn (*J. Biol Chem.* **67**:585 [March] 1926) have still further simplified the estimation by precipitating the calcium as phosphate and then estimating the phosphate by the Benedict-Theis colorimetric technic. It is too early to say whether this technic will replace the older oxalate precipitation and permanganate titraton. The method of Benedict and Theis (*J. Biol. Chem.* **61**:63 [Aug.] 1924) is probably the simplest and most satisfactory for the inorganic phosphorus of the serum. This and other methods for calcium determinations are given in some of the more recent textbooks dealing with clinical blood chemistry.

SCHICK TEST—DIPHTHERIA CARRIERS

To the Editor:—1. What percentage of diphtheria carriers are capable of infecting and producing the disease in others? 2. Do most carriers have a positive Schick test? 3. If so, what would be the effect of giving antitoxin, on the virulence of these organisms? 4. If a Schick test is read for three or four days, is a control necessary? 5. Does horse serum (boiled and unboiled) give a skin reaction resembling a "positive Schick" that could not be ruled out by reading forty-eight hours or better? 6. Should nonvirulent diphtheria carriers be isolated in a hospital? 7. What is the best manner of handling a carrier in a children's hospital? This problem gives me more concern than all others, taken together. Please omit name.

M.D., Washington, D. C.

ANSWER.—1. All carriers of virulent diphtheria bacilli are potential spreaders of the disease.

2. Diphtheria carriers have a negative Schick test; i. e., are immune.

3. Antitoxin has no effect on the bacilli.

4. A control is always advisable.

5. Horse serum may give a protein reaction when injected into the skin.

6. Carriers of nonvirulent bacilli do not require isolation.

7. Isolation the same as with diphtheria until the bacilli disappear.

TREATMENT OF CHOLECYSTITIS AND BILIARY DRAINAGE

To the Editor:—1. I am interested in the Lyon-Meltzer treatment of cholecystitis (duodenal tube) and I should like to have the chief references to this subject. 2. How often should the gallbladder be drained? 3. What amount of bile is normally obtained? 4. How long will it normally take until the gallbladder fills up again after "complete drainage"?

KURT J. BERLINER, M.D., Vineland, N. J.

ANSWER.—1. The most important and extensive description of the subject of biliary drainage is to be found in Vincent Lyon's "Nonsurgical Drainage of the Gall Tract," Philadelphia, Lea & Febiger, 1923. There are innumerable articles for and against the procedure. A few opposing the use of the Lyon test are:

Crohn, B. B.; Reiss, Joseph; and Radin, M. J.: Experiences with the Lyon Test (Magnesium Sulphate Lavage of the Duodenum), THE JOURNAL, June 4, 1921, p. 1567.

Dunn, A. D., and Connell, Karl: Report of a Case of Hepatoduodenostomy, THE JOURNAL, Oct. 1, 1921, p. 1093.

2. The answer to this question depends on whether or not one accepts the procedure as a valuable asset in the treatment for which it is recommended. Drainage is prescribed daily or triweekly at first, later at less frequent intervals. The microscopic and macroscopic appearance of the B bile is the index of treatment. A clearing up of the bile indicates improvement and calls for a reduction in the frequency of its use.

3. The amount of bile obtained varies from a few cubic centimeters to several ounces. Some adherents of this procedure allow the tube to remain in situ for several hours and obtain enormous quantities of bile.

4. It has never been proved that the gallbladder is completely emptied or that the gallbladder has contractile power by any of the following ways: (*a*) Roentgenologically when an opaque solution, such as one of the phthalein compounds, has been used because the concentrating power of the gallbladder allows a definite shadow of the gallbladder to be obtained, before and after drainage. (*b*) By direct observation of the gallbladder on the operating table or experimentally in animals with the tube in situ. (*c*) By the unconvincing method of palpation of what is thought to be a gallbladder. (*d*) By the amount of B bile obtained during drainage. (*e*) By the work of a large number of careful research workers who have spent an enormous amount of time on this question. At best the value of the procedure is based on an unproved hypothesis of Meltzer called the law of contrary innervation, and applied in this instance to the biliary apparatus. From all reports the method appears to be losing ground as a therapeutic measure.

ENTEROCAP ORALSULIN

To the Editor:—Please give me some information on a treatment for diabetes with the substance called Enterocap Oralsulin, made by the Lafayette Pharmacal Company of Lafayette, Indiana. I cannot find it mentioned in New and Nonofficial Remedies.

MOSES H. BAKER, M.D., Pittsburgh.

ANSWER.—"Enterocap-Oralsulin" is advertised as "a product of the Pancreas of young food animals that is designed for use as an adjunctive treatment of Diabetes Mellitus." From this and other statements in the advertising it appears that it is claimed to be a preparation containing insulin put up in enteric coated capsules for oral administration, and is but one of a line of animal and endocrine products so marketed by the Lafayette Pharmacal Company.

The advertising in our files gives no satisfactory evidence that these "Enterocaps" will convey the substances undissolved through the stomach to the intestines. Even if such evidence exists, and, in the case of "Enterocap-Oralsulin," one could be sure that the insulin said to be present would arrive in the intestine unharmed, the weight of evidence is against its probable effectiveness. The work of Hachen and Mills (Effects Following the Intestinal Administration of Insulin, *Am. J. Physiol.* **65**:395 [July] 1923) shows that in man the blood sugar lowering effect of insulin was not noted after good sized doses administered either orally or through a duodenal tube by the intestinal route.

In commenting editorially on the administration of insulin, THE JOURNAL as long ago as 1923 called attention to the desirability of giving wide publicity to the current limitations of this most promising therapy, since many "just-as-good" pancreatic and antidiabetic preparations for oral use were already being put on the market. This warning is still in order, for there is yet no convincing evidence to show that any preparation taken by mouth is an effective means of producing the characteristic action of insulin.

SEPARATION OF FINGER NAILS

To the Editor:—A woman, aged 36, a housewife on a farm doing routine kitchen and poultry work, says that the majority of her finger nails are leaving their bed, in portions. The nail becomes friable and breaks easily, but with no pain or exudate. Perhaps this is due to a fungus growth, probably from the turkey feed or washing powder. What treatment would you suggest?

FRANK W. SMITH, M.D., Fairlee, Md.

ANSWER.—Few things are more perplexing than some of these cases of spontaneous separation of the nails from the nail bed. They may be due to an infection of ringworm fungus, but this is very unlikely to occur without some accumulation of scales under the nails. If they are due to fungus, by taking scrapings and dissolving the horn in potassium hydroxide solution the fungus can be demonstrated microscopically. Sometimes, perhaps, they are due to an infection of the nails with pus organisms. Sometimes they are manifestations of a specific cutaneous disease like psoriasis, but in these cases the disease is present on other parts. Most frequently they are the result of some obscure nutritional disturbance whose character cannot be determined. The condition is practically unaffected by treatment.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11-14. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 4. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

DELAWARE: Wilmington, Dec. 14-16. Pres., Dr. H. W. Briggs, Wilmington.

DISTRICT OF COLUMBIA: Jan. 11. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye St., N. W. Washington.

HAWAII: Honolulu, Jan. 10-13. Sec., Dr. A. L. Davis, 1254 Emma St., Honolulu.

ILLINOIS: Chicago, Jan. 11-13. Supt. of Registration, Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, Jan. 11. Sec., Dr. William T. Gott, Crawfordsville.

KENTUCKY: Louisville, Dec. 7. Sec., Dr. A. T. McCormack, Louisville.

MARYLAND: Baltimore, Dec. 14-17. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

MINNESOTA: Minneapolis, Jan. 4-6. Sec., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

NORTH DAKOTA: Grand Forks, Jan. 4-7. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 4-6. Sec., Dr. M. K. Hall, 816 Pittock Block, Portland.

PENNSYLVANIA: Philadelphia, Jan. 25-29. Mr. C. D. Koch, Director, Professional Education Bureau, Harrisburg.

RHODE ISLAND: Providence, Jan. 6-7. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 18. Director, Dr. H. R. Kenaston, Bonesteel.

UTAH: Salt Lake City, Jan. 4-5. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 7-10. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

WISCONSIN: Madison, Dec. 18. Board of Examiners in the Basic Sciences. Sec., Dr. M. F. Guyer, Madison. Jan. 11, Regular Board. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

Kentucky June Examination

Dr. A. T. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, June 24-26, 1926. The examination covered 10 subjects and included 110 questions. An average of 75 per cent was required to pass. Of the 60 candidates who were examined, 57 passed and 3 failed. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Kentucky School of Medicine	(1908)	84
Louisville Medical College	(1905)	78
University of Louisville School of Medicine (1926) 81, 81, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 88, 90, 90, 90, 90, 90, 91, 91	(1925)	82,
Johns Hopkins University Medical Department	(1923)	90
St. Louis College of Physicians and Surgeons	(1920)	77
Eclectic Medical College Cincinnati (1926) 82, 83, 84, 84, 86,		88, 88
Hahnemann Med. College and Hospital of Philadelphia	(1926)	86
University of Naples, Italy	(1921)*	70†
FAILED		
Howard University School of Medicine	(1925)	79‡
Louisville Medical College	(1906)	56
St. Louis College of Physicians and Surgeons	(1920)	65

* Verification of graduation in process.
† Five per cent added for years of practice.
‡ Fell below in one subject only.

Washington July Examination

Mr. George L. Berger, assistant director, Washington Department of Licenses, reports the written examination held at Olympia, July 6, 1926. The examination covered 13 subjects and included 130 questions. An average of 75 per cent was required to pass. Of the 19 candidates examined, 18 passed and 1 failed. Thirty candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
College of Medical Evangelists	(1925)	81.5
George Washington University Medical School	(1917)	80.2
Northwestern University Medical School	(1926)	79.7, 80.3
University of Illinois College of Medicine	(1926)	78.3, 83
Tufts College Medical School	(1912)	75.4
St. Louis University School of Medicine	(1925)	77.9
Columbia University College of Phys. and Surgs.	(1913)	83.7
University of Oregon Medical School	(1925)	79, 81, 83.6
University of Toronto Faculty of Medicine	(1925)	81.7, 85
Western University Faculty of Medicine	(1912)	78
McGill Univ. Faculty of Med.	(1923) 75.6, (1924) 78.4, (1925)	81.2
FAILED		
Central Medical College of St. Joseph, Mo.	(1898)	59.2

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
College of Medical Evangelists	(1925, 2)	California
Chicago College of Medicine and Surgery	(1913)	Illinois
Loyola University School of Medicine	(1919)	Illinois
Northwestern University Medical School (1912), (1920) Illinois	(1909)	Montana
Rush Medical College (1904) Iowa	(1892) Minnesota, (1903), (1926)	Illinois
College of Physicians and Surgeons, Chicago	(1900)	Illinois
Medical College of Indiana	(1904)	Indiana
State University of Iowa College of Medicine	(1918)	Iowa
Detroit College of Medicine	(1901)	Michigan
University of Minnesota Medical School	(1926)	Minnesota
Barnes Medical College, St. Louis	(1900)	Indiana
St. Louis University School of Medicine	(1925)	Minnesota
Washington University School of Medicine	(1925)	Missouri
Creighton University College of Medicine	(1915)	Nebraska
University of Nebraska College of Medicine	(1925, 2)	Nebraska
Bellevue Hospital Medical College	(1892)	Montana
University of Cincinnati College of Medicine	(1922) California,	Montana
University of Oregon Medical School	(1925, 2)	Oregon
Medical College of Virginia	(1910)	Idaho
University of Virginia Department of Medicine	(1893)	Oregon
University of Oslo, Norway	(1916)*	Minnesota

* Verification of graduation in process.

Indiana July Examination

Dr. William T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports the oral and written examination held in Indianapolis, July 13-15. The examination covered 15 subjects and included 100 questions. An average of 75 per cent was required to pass. Eighty-four candidates were examined, all of whom passed. The following colleges were represented:

College	Year Grad.	Number Passed
PASSED		
University of Arkansas Medical Department	(1925)	1
Howard University School of Medicine	(1926)	1
University of Louisville School of Medicine	(1926)	1
Loyola University School of Medicine	(1926)	2
Northwestern University Medical School	(1926)	4
Rush Medical College	(1926)	1
Indiana University School of Med. (1924) 1, (1925) 2,	(1926)	64
Tufts College Medical School	(1925)	1
St. Louis University School of Medicine	(1926)	1
Eclectic Medical College, Cincinnati	(1926)	5

South Carolina June Examination

Dr. A. Earle Boozer, secretary of the South Carolina Board of Medical Examiners, reports the written examination held at Columbia, June 22-24, 1926. The examination covered 18 subjects and included 80 questions. An average of 75 per cent was required to pass. Of the 40 candidates examined, 37 passed and 3 failed. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Emory University School of Medicine	(1926)	85.9
Rush Medical College	(1911)	92
Columbia Univ. College of Phys. and Surgs.	(1926)	88.9
Jefferson Medical College of Philadelphia	(1926)	86.6, 89.8
Woman's Medical College of Pennsylvania	(1926)	82
Medical College of the State of South Carolina (1926) 80.1, 80.9, 81.4, 81.8, 81.8, 82.1,82.8, 83.1, 83.3, 83.5, 84.3, 84.5, 84.8 85.1, 85.5, 85.5, 85.6, 86.1, 86.1, 86.3, 87.1, 87.3, 87.5, 87.9, 87.9, 88.1, 88.5, 89.6, 89.8, 91		
Meharry Medical College	(1926)	79.3
FAILED		
Medical College of the State of South Carolina	(1926) 79.5, 82.8,*	86*

* Fell below in one subject only.

Rhode Island July Examination

Dr. Byron U. Richards, secretary of the Rhode Island Board of Health, reports the written and practical examination held at Providence, July 1-2, 1926. The examination covered 7 subjects and included 70 questions. An average of 80 per cent was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Johns Hopkins University Medical Department	(1925)	89
Tufts College Medical School	(1925)	93.4
Columbia University College of Phys. and Surgs.	(1904)	97.1
Hahnemann Medical College and Hospital of Phila.	(1925)	89.9
Laval University Faculty of Medicine	(1906)	93.6
FAILED		
University of Athens, Greece	(1923)	67.5

Book Notices

FRESHMAN HYGIENE: Personal and Social Problems of the College Student. By Raymond C. Bull, A.B., M.D., Director of Student Health Service, Lehigh University, and Stanley Thomas, M.S., M.A., Associate Professor of Bacteriology, Lehigh University. Cloth. Price, $2. Pp. 288, with 74 illustrations. Philadelphia: J. B. Lippincott Company, 1926.

This addition to the personal hygiene field presents the material simply and clearly. There are discussions of student fads in clothing, tobacco, the selection of a boarding house, extracurricular activities, and "bootleg liquor." In the chapters on nutrition, eating habits for students are well presented and emphasis is placed on the danger of false economy in food. There are excellent practical points in the chapters on mental health and on habits. One of the strongest sections is the one on social hygiene, including the venereal diseases; it is sensible and straightforward, and gives the desirable information effectively. This volume, like many others on the same subject, is open to possible criticism in that so much of the space is given over to anatomy and physiology. It is unfortunate that the good points in the book should be offset to some extent by statements the scientific accuracy of which is open to question. Such statements as that "all communicable diseases are caused by germs," "colds are communicable," "breathing exercises are important," "sudden violent exercise may cause dilatation of the heart," and "the tuberculin test for tuberculosis indicates the presence or absence of this disease" should be qualified, if included. There are better books on personal hygiene in print, but this one is unusual in being presented definitely for the college student.

CONTRIBUTION À L'ÉTUDE DES PARAPLÉGIES POTTIQUES. Essai sur l'évolution et le pronostic, basé sur 40 observations personnelles. Par Mme. le Dr. Sorrel-Djerine. Préface du Dr. André-Thomas. Paper. Price, 40 francs. Pp. 401, with 98 illustrations. Paris: Masson & Cie, 1926.

The author studied forty cases of Pott's paraplegia at the maritime hospital of Berck and its annex. During that time the number of cases of Pott's disease treated in the hospital was approximately 500, giving 8 per cent with paraplegia. In thirty-two of these forty cases, Pott's disease was dorsal in location. Pott's paraplegia occurred as often in children as in adults; it was usually due to medullary compression, rarely to radicular compression. It was found that paraplegia might occur early in the course of Pott's disease, toward the end of the first year, at which time symptoms develop rapidly, or late in the course of Pott's disease, perhaps several years after the Pott's disease which has been imperfectly treated; in such cases, symptoms develop slowly and insidiously. In cases examined pathologically, the author found that Pott's paraplegia was due rarely to compression by bone; very frequently to an intraspinal abscess, and sometimes to a pachymeningitis. In some instances the observations indicated that the circulatory stasis and edema of the tissues that precede the formation of a tuberculous abscess might themselves cause paraplegia without an abscess actually forming. The abscess that causes Pott's paraplegia may develop between the posterior face of the vertebra and the posterior vertebral ligament without destroying the ligament (supraligamentary abscess), or it may develop below the ligament in the epidural space, destroying the ligament. It may be lateral or retromedullary (subligamentary abscess). After an abscess has been absorbed, degenerative lesions may persist (pachymeningitis) and cause a permanent paraplegia. Such cases are comparatively rare. Clinically, Pott's paraplegia may be transitory, disappearing in a few weeks or months and leaving no sequelae; it may be curable in from eighteen months to two years, or it may be permanent and incurable. The curable type is the most frequent. The transitory type is caused by local edema without actual abscess formation; the curable type, by abscess; the incurable type by pachymeningitis, compression by bone, or by serious vascular lesions. In cases due to edema or abscess, and curable, the symptoms arise early in the course of Pott's disease and develop rapidly. In cases due to pachymeningitis, the symptoms develop later in the course of Pott's disease and develop more gradually.

The paraplegia of Pott's disease it typically a spasmodic paraplegia in extension (thirty-two cases). Paraplegia in flexion was observed only five times. In two cases the paraplegia was hyperspasmodic, with contraction not only of the limbs but also of the muscles of the trunk; in one case the paraplegia was flaccid, of a severe and permanent type. Sensitory symptoms are frequent, root pains especially occurring in almost every case and indicating the location of the lesion; pains were noted also originating above and below the lesion —the former the sympathetic pains in the upper extremities, the latter the so-called cordonnal pains. Objective sensatory symptoms in Pott's paraplegia should be studied with particular care; they are rarely entirely absent. Diminution of sensibility, especially of the tactile sense and the sense of pain, or anesthesia are most common. A careful mapping out of the areas of diminished sensibility is of great value in the location of the lesion. In only one case was hyperesthesia noted. In fifteen of the author's cases there was marked loss of control of the sphincters; in other cases, sphincter troubles were slight. Studies of the pilomotor reflex and other disturbances in the sympathetic nervous system indicate that such disturbances in Pott's disease, with or without paraplegia, are numerous and often difficult to interpret.

Examination of the cerebrospinal fluid in cases of Pott's paraplegia in active evolution showed a marked increase in albumin without a corresponding increase in the cell count, sometimes a complete Froin syndrome in the fluid from below the lesion, while that above was practically normal. This abnormality in the cerebrospinal fluid disappears as the lesion heals. In eighteen cases, roentgenologic examination after injection of iodized oil was made. In those cases in which the symptoms had subsided, the iodized oil either passed normally to the base of the spinal column or was partially and temporarily arrested at the site of the lesion. In cases in active evolution due to abscess, the lower limit of the shadow was horizontal but showed some prolongations downward. In chronic cases due to pachymeningitis, the iodized oil was definitely arrested, the lower limit of the shadow being clearly defined and horizontal. The diagnosis and localization of the lesion in Pott's paraplegia depends on the symptoms and sensatory disturbances and on the roentgenologic examination, especially with iodized oil. A study of the history and symptoms will usually indicate whether the condition is due to a curable lesion—abscess or edema—or to an incurable lesion. The author does not consider that surgical treatment is indicated in the curable lesions, while in the incurable lesions it is useless. The most important part of the treatment is absolute immobilization of the spine, associated with general hygienic treatment, and especially with prolonged stay at the seashore with exposure to sunlight.

INJURIES OF THE WRIST: A Radiological Study. By Dr. Etienne Destot. Translated by F. R. B. Atkinson, M.D.C.M. Cloth. Price, $6. Pp. 176, with 87 illustrations. New York: Paul B. Hoeber, Inc., 1926.

With the exception of cases treated by surgeons particularly skilled in fractures, many wrist and carpal injuries are badly treated. The practitioner is especially familiar with Colles' fracture, and unfortunately treats carpal injuries in terms of Colles' fracture, sometimes with disastrous results on wrist function. Cases of overlooked scaphoid or semilunar fracture or dislocation are familiar to every surgeon. Abnormalities of the carpus, even with good roentgen-ray study, are difficult to diagnose. The location is anatomically complex, and minor displacements produce disproportionate disability. The subject matter on the carpus presented in the average textbook on fractures is usually limited to two or three pages and is entirely inadequate. This treatise, remarkable for the extent and detail to which experimental research and clinical study were carried, covers a period of twenty-one years and was terminated only by the author's death. An exceedingly interesting historical introduction is followed by a chapter on anatomy and physiology which is remarkable for the detailed study of the most minute morphologic variation and its functional significance. Many simple line drawings of a mechanistic type, and roentgenograms to correlate clinical observations with the former, illustrate the text, which

will serve a real purpose in materially furthering the knowledge of the surgeon already skilled in fractures and in making the tyro think before attempting the care of a complicated case.

A GUIDE FOR DIABETICS. By Walter R. Campbell, M.A., M.D., Department of Medicine, University of Toronto and Toronto General Hospital, and Mame T. Porter, B.Sc., Dietitian, Toronto General Hospital. Cloth. Price, $2.50. Pp. 259. Baltimore: Williams & Wilkins Company, 1926.

This volume emanates from the fountainhead of knowledge concerning the treatment of diabetes with insulin. Since any form of treatment of diabetic patients depends also on the control of food, popular books for them are a necessity. The present volume discusses the nature of the disease, the principles of control with food and insulin, and methods of urinalysis. It also provides numerous recipes of value. A special section lists institutions through which supplies for diabetic patients may be obtained. The volume is interleaved with pages for personal notes to be used in the individual case. The book may be recommended as especially suitable because of its accuracy and facility of use.

VOM LIEBES- UND SEXUALLEBEN. Erfahrungen aus der Praxis für Aerzte, Juristen und Erzieher. Von Dr. med. Ludwig Frank, Nervenarzt in Zurich. Erster und Zweiter Band. Paper. Price, 14.40 marks. Pp. 807. Leipsic: Georg Thieme, 1926.

In two volumes, comprising a total of almost a thousand pages, the author presents a series of letters which presumably recite the difficulties in the sexual lives of many of his patients. The form in which this material is made available has been especially chosen by the author because of the opportunity that it gives to include not only the points commonly considered significant in case history, but also the environmental factors that may have a bearing on the disturbances of sex life for which consultation was sought. The letters in most instances are addressed to a colleague who has presumably submitted the case for study, others to a mother or a father who requires advice, and a few to the patient himself. Practically all of the aberrations of sexual life are concerned. The explanations, which are in easily understood German, are based largely on freudian conceptions of sexual relationships. The literary experiment presented in these volumes seems unfortunately little adapted to either proper medical or lay consideration.

FATALISM OR FREEDOM: A Biologist's Answer. By C. Judson Herrick of the University of Chicago. Cloth. Price, $1. Pp. 96. New York: W. W. Norton & Company, Inc., 1926.

In this brief essay the author presents concretely the conception of the relation of the mind to the body that is much more fully elaborated in his recent volume, "The Brains of Rats and Men." He is aware of the fact that the control of human actions is largely biologic, but insists that there is abundant scientific evidence to show that thinking is a function of the body, just as truly as walking is a body function. The human being has the power of exercising choice, but repeated acts of choosing tend in time to establish biologic control. The normal man in normal environment is free to work out his own future and to enlarge and revise it. Dr. Herrick preaches the doctrine of a free man who is responsible for what he does.

PSYCHOLOGICAL MEDICINE. A Manual on Mental Diseases for Practitioners and Students. By Sir Maurice Craig, C.B.E., M.A., M.D., and Thomas Beaton, O.B.E., M.D., M.R.C.P., Senior Assistant Physician and Physician to Out-Patients, Bethlem Royal Hospital. Fourth edition. Cloth. Price, $6. Pp. 437, with 25 illustrations. Philadelphia: P. Blakiston's Son & Company, 1926.

In this edition the authors have practically rewritten the work in order to avail themselves of modern points of view in psychology and psychopathology. The volume begins with a general consideration of psychology and mental mechanism, then considers the causes and classifications of mental disorders, and proceeds to a study of special mental disorders, concluding with a section on mental deficiency and miscellaneous chapters covering laboratory work, the relationship of insanity with law, and the general treatment of the insane. It is planned definitely to the needs of British medical practice.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits.

DIE PSYCHOPATHISCHEN VERBRECHER: Die Grenzzustände zwischen geistiger Gesundheit und Krankheit in ihren Beziehungen zu Verbrechen und Strafwesen. Für Ärzte und Juristen. Von Dr. Karl Birnbaum, Oberarzt an der Berliner Städtischen Irrenanstalt Herzberge. Second edition. Paper. Price, 17.50 marks. Pp. 287. Leipsic: Georg Thieme, 1926.

Twenty-eight lectures on criminal psychopathology and the criminal constitution.

DIE PRAXIS DER PHYSIKALISCHEN THERAPIE. Ein Lehrbuch für Ärzte und Studierende. Von Dr. A. Laqueur, Dirigierendem Arzt der hydrotherapeutischen Anstalt und des medikomechanischen Instituts am städtischen Rudolf Virchow-Krankenhause zu Berlin. Third edition. Paper. Price, 18 marks. Pp. 357, with 98 illustrations. Berlin: Julius Springer, 1926.

German outline of physical therapeutic methods.

ARCHIV UND ATLAS DER NORMALEN UND PATHOLOGISCHEN ANATOMIE IN TYPISCHEN RÖNTGENBILDERN. Die Harnorgane im Röntgenbild. Von Professor Dr. Eugen Joseph. Erganzungsband 37. Fortschritte aus dem Gebiete der Röntgenstrahlen. Herausgeber, Prof. Dr. Grashey. Paper. Price, 31.50 marks. Pp. 58, with illustrations. Leipsic: George Thieme, 1926.

Roentgenographic atlas of the urinary tract.

LES MALADIES NERVEUSES. Cours professé à l'Université de Louvain. Par A. Van Gehuchten, Professeur ordinaire. New edition revised by Dr. P. van Gehuchten. Paper. Pp. 694, with illustrations. Louvain: Librairie Universitaire, 1926.

New edition, well illustrated, of French textbook on diseases of the nervous system.

WHY INFECTIONS?—In Teeth, Tonsils and Other Organs. By Nicholas Kopeloff, Ph.D., Associate in Bacteriology, Psychiatric Institute, Ward's Island, N. Y. Cloth. Price, $2. Pp. 182, with 15 illustrations. New York: Alfred A. Knopf, 1926.

Popular and reliable account of the conception of focal infection.

IMHOTEP: The Vizier and Physician of King Zoser and Afterwards the Egyptian God of Medicine. By Jamieson B. Hurry, M.A., M.D. Cloth. Price, $2.50. Pp. 118, with illustrations. New York: Oxford University Press, 1926.

A beautifully illustrated presentation of a predecessor of Aesculapius.

OUTLINE OF ABNORMAL PSYCHOLOGY. By William McDougall, Professor of Psychology in Harvard College. Cloth. Price, $4. Pp. 571. New York: Charles Scribner's Sons, 1926.

A somewhat antifreudian consideration of present day conceptions in psychology.

DARWIN. By Gamaliel Bradford. Cloth. Price, $3.50. Pp. 314, with illustrations. Boston: Houghton Mifflin Company, 1926.

Modern biography of the founder of the doctrine of evolution.

THIRTIETH REPORT OF THE PROVINCIAL BOARD OF HEALTH: Including Fifteenth Report of Medical Inspection of Schools, Year Ended June 30th, 1926, and the Fifty-Fourth Report of Vital Statistics Department, being a Summary Report for the Year 1925. Province of British Columbia. Paper. Pp. 71, with illustrations. Victoria: Provincial Board of Health, 1926.

ON SYPHILIS AND GONORRHŒA AND ASSOCIATED DISEASES: With Special Reference to Their Nature and Treatment and the Measures Adopted in Scotland for Their Prevention and Cure. Reprinted from the Seventh Annual Report of the Scottish Board of Health, 1925. Paper. Price, 2 d. net. Pp. 24. Edinburgh: His Majesty's Stationery Office, 1926.

REPÚBLICA ARGENTINA. ACTAS Y TRABAJOS. Segundo Congreso Nacional de Medicina, Buenos Aires, 1922. Tomo II—Parte II: Pediatria, Neurologia y Psiquiatria, Dermatologia, Sifilologia, Tisiologia. — Tomo IV. Otorrinolaringologia, Oftalmologia, Genito-Urinaria y Fisiologia. Paper. Pp. 902 and 959, with illustrations. Buenos Aires, 1926.

PROCEEDINGS OF THE CONNECTICUT STATE MEDICAL SOCIETY, 1926. 134th Annual Meeting held at New Haven, May 19th and 20th, 1926. Editor Charles Williams Comfort, Jr., M.D. Cloth. Pp. 298, with illustrations. New Haven, 1926.

REPORT OF THE COMMISSIONER OF HEALTH OF PORTO RICO FOR THE FISCAL YEAR ENDING 1925 TO THE GOVERNOR OF PORTO RICO. Paper. Pp. 184. San Juan, 1926.

Medicolegal

Maternity Home Not a Nuisance

(Perry et al. v. Ripley et al. (Texas), 282 S. W. R. 329)

The Court of Civil Appeals of Texas, in reversing an order refusing to dissolve a temporary writ of injunction granted on the application of Ripley and others, property owners, restraining the defendants from maintaining a maternity home in a certain locality, says that it seemed plain that the threatened injuries of which the plaintiffs complained were purely conjectural, and, for injuries of that character, the ordinary writ of injunction is not available. The right to maintain a maternity home being authorized by the legislature, as well as the manner in which it should be managed and conducted prescribed thereby, can it be said that an institution so existing under and conducted in conformity with the legislative will of the state is a nuisance, the law not invading any of the inviolable rights of the plaintiffs as secured to them by the constitution, federal or state? The court thinks not. The maintenance of a maternity home is a legitimate business; therefore a writ of injunction should not be granted because the plaintiffs apprehend that it may become a nuisance through the conduct of the home in violation of the provisions of the law directing the way in which it shall be conducted. That would be granting the relief sought on the assumption that the home will be conducted in an unlawful manner, when the presumption is to the contrary, that it will be conducted in accordance with the requirements of the law, namely, in a proper manner.

The operation of a maternity home for the care of those approaching motherhood has never been, and, this court ventures to say, will never be, held to be within itself immoral, and that, regardless of the acts and conduct of the parties responsible for the new life about to be ushered into existence. It is not the inception of the condition making necessary a maternity home to which the law looks in determining the needs and necessity of society for such an institution, but that higher law which finds its genesis in administering in the interest of humanity to relieve the suffering, care for the needy and succor the weak in the hour of distress, sorrow and misfortune. While not condoning any act in violation of the law of God or man for the protection of society and the preservation of the highest moral influence and environments, yet it does not condemn as outcasts those who are made to suffer most for the sins of mankind—women. While condemning, on the one hand, the immoral act that brings into exisitence an illegitimate child, yet, in the interest of humanity, the law representing organized society extends its aid and assistance to the conditions thus presented with the purpose of relieving erring humanity and furnishing an asylum for the time being to the unfortunate mother and helpless babe, that perchance the mother may be reclaimed and the child saved to noble walks of life. The giving of birth to a child is not within itself an immoral act, nor is the rendering of aid and assistance through the humanitarian agency of a maternity home to a woman in this hour of extremity to be so classed.

Telephone Operator Selecting Physician and Hospital

(Gross v. State Industrial Commission et al. (Okla.), 245 Pac. R. 580)

The Supreme Court of Oklahoma says that this cause was instituted in this court by petition for a review of an award of the state industrial commission of $144 compensation for medical and hospital services furnished the petitioner, who had asked for an award of $1,274.30 therefor. In a fall which he had had while working for a company, he sustained a fracture of one arm and one leg. A young woman telephone operator in the office of the company telephoned to the hospital and asked that an ambulance be sent to take the injured employee to the hospital. About fifteen or twenty minutes after the ambulance had conveyed the petitioner to the hospital, one of the members of the company arrived at the office, and, on being advised of the accident and what had been done, called a physician and requested him to take charge of the injured employee and render all medical and surgical services necessary. Within probably an hour the physician went to the hospital, made an examination of the patient, and found that all had been done that was necessary. Thereupon he gave some instructions to the attendants concerning the care of the patient, and in the next few days made frequent visits to the hospital to see him, during which time he discovered that the physician who first took charge of the patient was also attending him and considered him his patient. After consultation with that physician and with the patient, and being advised that his services were no longer wanted, he dismissed the case, or at least left it in charge of the first physician. The award of $144 which the commission made was to cover the expense incurred on and after December 20, the date of the accident, up to Dec. 27, 1922, inclusive, which included the period of time that elapsed before any definite understanding was reached by the petitioner and the physicians as to who was in charge of the case. The award was apparently based on the theory of liability for emergency treatment, as provided under section 7288 of the compiled statutes of 1921, as amended in 1923; but this amendment was not in effect at the time the injury complained of occurred, and the court doubts whether the award made was authorized. However, no attack having been made against the award, it is affirmed.

The petitioner contended that the employer and insurance carrier, respondents, were bound by the action of the telephone operator; that she was acting in the capacity of agent; and that, a selection having been once made, the respondents had no right or authority to change physicians or hospitals. This contention would probably be true if the telephone operator were in fact such an agent or employee of the company as was authorized to bind the company in transactions of this character, but the court cannot agree with this contention. A person employed as a telephone operator has no authority as agent of the employer to select a surgeon and hospital accommodations for an injured fellow employee. And an employer cannot be held responsible for physician and hospital bills, incurred by reason of service rendered an injured employee unless he refuses to select or engage a physician and hospital accommodations, suitable to render and supply all necessary services, within a reasonable time.

Operation with Window Open, Bugs Getting into Wound

(Prewett v. Philpot et al. (Miss.), 107 So. R. 880)

The Supreme Court of Mississippi, division A, in reversing a judgment on a verdict directed for the defendants, says that the action was against a surgeon and a hospital for injury to the plaintiff from alleged negligence while an appendectomy was being performed on him at the hospital, by the surgeon, on a night in June. One or more windows to the operating room were left open during the operation. They were screened with wire, but a large number of bugs —small hardshell beetles—came through them. In order to prevent the bugs getting into the plaintiff's wound, a nurse fanned him constantly, and several times the wound was covered with a piece of gauze and the electric light immediately above the operating table was turned off and lights on the walls of the room were turned on so that the bugs would be attracted from the patient thereto. The bugs were too small to be kept out by any screen that would have been suitable for ventilating the room. Whether the windows were opened before or not until after the operation was begun did not appear from the evidence. The plaintiff was discharged from the hospital about ten days after the operation, and a few days after that his wound became inflamed and pus began to form, necessitating his being returned to the hospital, where the wound was reopened, drained and treated. But before he returned to the hospital two bugs of the kind that were in the room while he was being operated on were got out of the wound by his mother, and the jury would have been warranted in believing from the evidence that the bugs got into the wound while the operation was being performed, and caused the inflammation and pus.

A physician who was present at the operation testified that the opening of the windows made it feel "a lot better to us

who were in there, and it did not do the patient any harm." A surgeon who was not present at the operation testified that it is customary for the windows of a room to be closed while a surgical operation is being performed therein, though when the heat becomes oppressive "we raise a window"; that excessive heat might be injurious to the patient, and that he did not think it would be negligent to raise a window during a surgical operation "on an average day in June in this country." Counsel for the defendants laid stress on this last statement, which was not objected to when made. Assuming for the purpose of the argument that it was in response to a properly framed question, its weight and sufficiency would have been for the determination of the jury.

A surgeon must exercise reasonable care when operating on a patient to prevent foreign matter that will be hurtful to the patient from getting into and remaining in the wound made in the course of the operation. Assuming for the sake of argument that after the bugs got into the room where the plaintiff's operation was being performed the defendants did all that could have been done to keep them from getting into his wound, nevertheless the bugs would not have gotten into the room had the windows thereof been kept closed as they should have been, unless the operation could not have been properly performed without ventilating the room by opening the windows. While it appeared from the evidence that the operation was performed on a hot night, it did not appear therefrom, first that the windows were opened because of the heat; and, secondly, that the heat was so great as to make it necessary to open the windows in order for the operation to be properly performed. Some reasonable explanation for opening the windows must be given before the defendants could be held not to have been negligent in permitting the bugs to get into and remain in the plaintiff's wound. In other words, leaving open or opening a window during an operation, whereby small bugs get through the screen and into the wound, authorizes a finding of negligence, in the absence of a reasonable explanation for the opening.

Budget for Parish Board of Health and Health Officer

(State ex rel. Parish Board of Health v. Police Jury (La.), 108 So. R. 104)

The Supreme Court of Louisiana says that this was a mandamus proceeding brought by the parish board of health of Calcasieu Parish to compel the police jury of that parish to budget and appropriate $5,251 for the operation and support of the board of health during the year 1926, as against $1,000 for the maintenance of the board, which the police jury placed in its budget of expenditures for 1926. The legislature was well aware of the fact that a police jury, by failing or refusing, to consent to a reasonable salary for the parish health officer, who is required to be a registered and licensed physician and is the chief executive of the local board, could decapitate the board and render its functioning impossible, by depriving it of its executive head, if the matter of fixing the alimony of the local board of health should be left to the discretion of the police jury. The legislature has been careful to anticipate and to prevent such action on the part of the police juries of the various parishes in the state. It is not only provided that, in the event the police jury shall fail, refuse or neglect to appoint or elect a parish board of health, such board shall be appointed by the state health officer, subject to the approval of the Louisiana state board, but it is also made the mandatory duty of the police jury to provide ample means for the maintenance and operation of local boards of health, and this duty may be enforced by writ of mandamus in all courts of competent jurisdiction. Act 79 of 1921 is pregnant with the legislative intent that local boards of health shall be established and maintained and shall function efficiently, to the end that the public health may be protected and conserved.

It appeared from the record that this police jury budgeted $4,000 for the support of the parish board of health in 1925, but reduced the allowance 75 per cent for 1926, while other items contained in the budget were scaled only from 10 to 25 per cent. This action on the part of the police jury was, in the court's opinion, unwarranted and a clear discrimination against the parish board of health in the matter of appropriations. As the health officer was to devote all of his time to the discharge of the duties of his office, and as $400 a year was required for the expense of making inspections in the parish, it was apparent that no reputable physician could be found who would assume the duties of health officer on the basis of a salary of $600 a year, or $50 a month. While it might be true that the revenues of the parish had declined to a large extent, on account of the recent failure of its sulphur mines, at the same time the public health is always a matter of vital importance, and it is the fixed public policy of the state of Louisiana that ample means shall be provided for its protection and conservation.

In conclusion, the court ordered that the alternative writ of mandamus issued should be made absolute, and that the respondent police jury, through its president and members, should take the necessary steps to readjust its budget for the year 1926 so as to budget, appropriate and pay to the board of health of the parish $3,600, to be apportioned: $3,000 as salary of the parish health officer; $400 expenses of inspection trips over the parish, and $200 as office expenses, including stenographer, telephones, telegrams and stationery. The remaining items on the budget of the parish board of health, namely, $1,000 contingent fund to care for emergencies, and $51 back indebtedness, expenses of health officer and drugs for board of health work, were disallowed. In cases of communicable diseases, ample remedy as to the expenses, costs and charges is provided by section 16 of act 79 of 1921. The state board of health can act in such cases on report made to it by local boards of health, and the police jury can be compelled to pay all necessary expenses in connection with the prevention of the spread of contagious diseases.

Mental Suffering a Concomitant of Physical Pain

(County Commissioners v. Timmons (Md.), 133 Atl. R. 322)

The Court of Appeals of Maryland says that, in this action to recover damages for personal injuries, plaintiff Timmons' prayer for the instruction of the jury as to damages, which was granted, was objected to by the defendant county commissioners of Prince George's County on the ground that in this case there was no evidence showing any "mental suffering" on the part of the plaintiff, and that hence that element should not have been included in the prayer. But this court does not think that this objection was tenable. Similar damage prayers have been repeatedly approved by this court, apparently without any reference to the presence or not of any direct evidence of mental suffering. The general rule seems to be that mental suffering is a necessary concomitant of physical pain; the former flows from the latter; and, where physical pain is shown, the jury has the right to assume that it was accompanied by mental suffering, and to allow the party injured some additional damages because of this suffering. Moreover, in the present case there was direct evidence of mental suffering, one of the physicians who testified for the plaintiff having stated that, because of the brain concussion suffered by the plaintiff in the accident, there would be "terrific depression for some time."

Physician Showing Condition Before and After Injury

(Chesapeake & O. Ry. Co. v. Hanson (Ky.), 283 S. W. R. 86)

The Court of Appeals of Kentucky, in affirming a judgment for $750 damages in favor of the plaintiff, Beulah Schilling Hanson, says that a physician testified that he was the Schilling family physician; that he had not treated the plaintiff prior to the date of the accident, but that since that date he had treated her for nervousness and painful menstruation, though he was unable to say whether or not this was the result of the accident. A motion made to exclude the evidence as to painful menstruation was overruled. It was argued that there was nothing to show that this ailment was the result of the injury, and the jury should not be permitted to speculate as to its cause. But this was not made the basis of a recovery for permanent injuries; it was the statement of a physical fact regarding the plaintiff's condition before and after the injury. It was a part of the history of the case, and the court thinks that it was admissible, even though the physician was uncertain as to its cause.

Society Proceedings

COMING MEETINGS

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. Lawrence Getz, Hospital Santo Tomas, Panama City, Panama Canal Zone, Secretary.
Philippine Islands Medical Association, Manila, Dec. 14-17. Dr. I. Concepcion, College of Medicine and Surgery, Manila, P. I., Secretary.
Society of American Bacteriologists, Philadelphia, Dec. 28-30. Dr. James M. Sherman, Cornell University, Ithaca, New York, Secretary.
Southern Surgical Association, Biloxi, Miss., Dec. 14-16. Dr. R. L. Payne, Medical Arts Building, Norfolk, Va., Secretary.

WESTERN SURGICAL ASSOCIATION

Thirty-Sixth Annual Meeting, held at Duluth, Minn., Oct. 12-14, 1926

(Concluded from page 1860)

Ligation of the Uterine Arteries Through the Vagina in Placenta Praevia

DR. WILLIAM KERWIN, St. Louis: Ligation of the uterine arteries through the vagina in placenta praevia was not done, so far as I know, until 1925, when it was forced on me by a patient who was dying of uncontrollable hemorrhage from the cervix due to placenta praevia. A patient in her fourth pregnancy had had severe spells of bleeding, one of which caused her to remain in the hospital for several weeks. The diagnosis of placenta praevia was made. At this time the child was not viable and interruption was not done. During the eighth month of pregnancy there was severe hemorrhage and it was deemed advisable to extract the child, which was done by version. The delivery of the placenta was followed by continued bleeding, for which styptics and uterine and vaginal packs were used. Five hundred cubic centimeters of blood was transfused, which partially revived the patient, but the continued bleeding necessitated repacking. In spite of this and several doses of solution of pituitary and ergot the bleeding continued. A second 500 cc. of blood was given. More bleeding caused the radial pulse to disappear and it was then decided to do a ligation of the uterine arteries as hysterectomy could not be considered. This was accomplished without the slightest difficulty, and the bleeding stopped immediately and did not recur. A third transfusion of blood and saline solution revived the patient and at the present time she is seven months pregnant. The puerperium was normal. A second case of placenta praevia was delievered by breech and a profuse hemorrhage followed delivery. The uterine vessels were ligated immediately and no further bleeding occurred. In this case as in the first the lochia was serous in type after the second day. The uterus in both cases involuted very rapidly. A few weeks ago I was called to deliver a patient with placenta praevia. Extraction by version was followed by a terrific hemorrhage. Ligation of both uterine arteries stopped the bleeding instantly. Transfusion was done in this case. All three of these patients recovered.

Two questions must be answered immediately: Does one succeed in ligating the main uterine artery and does one miss ligating the ureter? A woman who died in full term pregnancy offered us our first opportunity to do the operation on the cadaver. The pelvic organs, including the uterus bladder, rectum, ureters, uterine vessels and vagina, were removed *en masse*. A dissection of the tissues was made and the thread was seen to include the main uterine artery and its branches to the cervix, and the ureter was found free by one inch. Until this was done the only proof that the uterine arteries were tied was the fact that all bleeding stopped. The cervix is grasped with tenaculum forceps and drawn downward and to one side. A flat retractor pushes the anterior vaginal wall with the empty bladder upward. A retractor on the side of the vagina exposes the lateral fornix of the vagina. A large, well curved, round needle threaded with plain catgut is carried upward and inward toward the uterus; the needle is started at the highest point of the vaginal fornix and a short distance to the front, carried as high as possible, and at the same time directed inward so as to catch the margin of the uterus, and then brought through posteriorly. The same procedure is carried out on the opposite side, and when the second suture is tied, all bleeding stops.

Evolution of Spinal Cord Surgery

DR. W. E. LEIGHTON, St. Louis: I believe that it has been shown that in careful hands, and with reasonable care in the selection of cases, a laminectomy is a relatively safe procedure; that the mortality of operation corresponds closely to the mortality of the lesions when not operated on; that the recovery is more apt to be complete when operation is undertaken early, and that it is less complete when undertaken after a delay. If an accurate diagnosis could be arrived at in all cases at the time of injury, the indications for operation would be clear. Unfortunately this is not the case, as Mixter, Monro and others have reported cases recovering after operation when the symptoms clearly pointed to a crushing lesion of the cord. Since a perfect functional recovery should be our aim in operation, and because of the destructive changes that follow rapidly on bone compression or the pressure resulting from intraspinal blood clots or edema, it would seem logical to advise early exploratory operation whenever there is the slightest doubt about the complete destruction of the cord.

Intracranial Complications of Fracture of the Skull Involving the Frontal Sinus

DR. FRANK R. TEACHENOR, Kansas City, Mo.: Fractures involving the frontal sinuses are frequent sources of grave intracranial complications. Air and infection forced into the frontal sinus from the nasal cavity during sneezing, straining, etc., are important factors in the production of these complications. Early diagnosis and drainage of the sinus are essential. In addition to drainage of the sinus, a free exit must be provided for air forced into the sinus from the nasal cavity. In cases of cerebrospinal rhinorrhea or pneumocephalus, the dural laceration should be sought and sutured

Uncomplicated Rotary Dislocation of the Atlas

DR. R. H. JACKSON, Madison, Wis.: Uncomplicated rotary dislocation of the atlas occurs more commonly than supposed and may easily be overlooked. If not recognized and reduced, the lesion may result in sudden death from an increase in the dislocation or in the development of myelitis months or years after the injury. Rotary dislocation of the atlas is a distinct clinical entity presenting a characteristic history and symptoms with physical observations verifiable by roentgen-ray examination. The general practitioner should learn to recognize them. Every effort should be made to reduce the dislocation, including, if necessary, resort to open operation.

Acute Lung Injuries with Hemorrhage

DR. DONALD MACRAE, JR., Council Bluffs, Iowa: The technic of war surgery of the chest, unlike most war surgery in general, may and should be utilized in civil practice. I am an ardent advocate of thoracotomy, delivery of the lung and the arrest of hemorrhage in all acute traumatic conditions of doubtful prognosis founded on the technic of inaction. Exceptions to the rule may be accepted in the consideration of age, previous health of the patient, or when the vital capacity is known to be low. Even in these cases, rather than death from inaction, when the only ray of hope is reflected through the knife, action should be prompt and courageous.

Cancer Literature of Ten Years

DR. CARL E. BLACK, Jacksonville, Ill.: As a result of a study of the literature, ten fundamental propositions are formulated. I. The cancer problem has three major phases: A. Clinical: 1. Prevention: (*a*) avoidance of chronic localized irritation from any cause; (*b*) removal of all potentially cancerous or precancerous lesions. 2. Treatment: (*a*) surgical (cold knife, cautery or caustic); (*b*) palliative (roentgen ray or radium). B. Research: This forms the invaluable basis for earlier and better prevention or treatment. C. Education: 1. Professional. 2. Public. II. The greatest field in medicine awaiting practical clinical development is the cancer

field. The profession is not making general practical clinical use of the few well known and fundamental facts for either the prevention or the treatment of cancer. III. The teaching of the cancer question in our medical schools is behind the progress of the times. It does not provide the student with a correct understanding of the lesions in which cancer develops. It does not impress on the student that cancer begins as a local lesion which can be cured by excision or destruction. Only the diagnosis and treatment of developed cancer is taught. IV. The ordinary classifications are of little clinical value and almost worthless from the standpoint of treatment. V. From a clinical standpoint the literature is chaotic, reminding one of the old days in the middle ages "when theologians were supposed to pull hair over the matter of how many angels could stand on the point of a needle." VI. Clinically, tumors, warts, moles, areas of irritation and chronic ulceration are either (1) potentially cancerous, (2) precancerous or (3) cancerous. VII. The laity must be taught by an intensive and continuous nation-wide campaign to report all minor lesions, signs or symptoms at the earliest moment and physicians must learn that all cancers begin in so-called minor lesions and become alert to their possibilities so that the laity may expect their potentially cancerous lesions to be removed before they become cancerous. VIII. The physician who treats or neglects to treat a potentially cancerous lesion until it becomes cancerous has failed in duty and should suffer the same criticism as when he allows, by delay, a simple appendicitis to become suppurative. Instead of the pathologist criticizing the surgeon who removes a benign growth he should criticize the one who, through delay, removes a malignant one. IX. It is a mistake to confine cancer education of the laity to adults past 30 years of age. Cancer education must be most intensive among those between 10 and 25 years of age in order that potentially cancerous and precancerous lesions may be removed before the patient reaches the cancer age. X. On account of the overemphasis on research and the neglect of practical clinical considerations, the medical profession is like a reserve army waiting in the rear for the research generals to give the order to advance while the enemy is busy at the front dealing torture and death. Every physician should be constantly on guard to prevent the enemy from becoming intrenched.

Cancer of the Cervix: Percy Cautery Method of Treatment

DR. CLIFFORD U. COLLINS, Peoria, Ill.: The Percy method will probably not relieve the patient of her cancer if the cancer cells have migrated farther than 3 or 4 inches from their starting point, that is, if the iliac glands or other organs are affected, unless she has a strong natural resistance to the disease. This means that if the treatment is to be successful it must be applied early in its course. I believe that the Percy method is the best treatment for cancer of the cervix that we have today, applied either as a hope for permanent relief or as a palliative measure.

External Versus Internal Fixation of Fractures

DR. H. WINNETT ORR, Lincoln, Neb.: Internal splinting of fractures has not been a generally successful method in the hands of surgeons with limited experience in such operations. A simpler method, and one that is just as efficient without the corresponding dangers, is that of fixed traction by means of moleskin, ice-tongs and pins embedded in the plaster cast. This method is particularly applicable in the treatment of infected compound fractures, as they can be immobilized over long periods without disturbance. An important point is that the infected wounds are cleaned up primarily and then disturbed at intervals of not less than from two to four weeks. Postoperative wet antiseptic dressings are not required in these cases.

Use of Hypertonic Saline Solution in Acute Intestinal Obstruction

DR. E. P. COLEMAN, Canton, Ill.: From January, 1921, to the present time I have seen thirty-eight cases of acute intestinal obstruction. The average time from onset of symptoms to operation varied from three hours to seven days. In the first series there were twenty cases with ten deaths. Eight patients had paralytic ileus; four recovered, while four died. Three cases of intussusception were diagnosed early and all recovered after operation in spite of the fact that three patients were under 1 year of age, one being only 4 months old. There were four strangulated hernias, three with enterostomy and two with bowel resection. Two of these patients died. Three were malignant growths of the colon complicated by acute obstruction, one at the cecum and one at the sigmoid. Both of these patients died within eight hours after a colostomy was done under local anesthesia. The third was a carcinoma of the rectum with complete obstruction for five days. The patient lived almost two years after colostomy and finally died from the cancer. One patient with volvulus, operated on seventy hours after the onset of symptoms, died five hours after an enterostomy was done, although he passed gas and the distention was relieved. One patient, with obstruction due to a band, died twelve hours after operation. His symptoms had been present two days before he was examined. In spite of all the care that could be taken, most of them developed a profound toxemia. Two patients had a severe diarrhea with toxemia, and the operative relief of the obstruction only seemed to hasten the fatal termination. The second series of cases, after the use of salt solution, presents an entirely different appearance. The types of cases were much the same. There was the same delay in diagnosis and the same delay in getting the patients into the hospital, but the mortality rate took a decided drop. In this series, there were eighteen cases with two deaths, 11.1 per cent, as compared with 50 per cent in the first series of twenty cases. The operative technic, so far as I can tell, was the same. The patients received the same care, but with the addition of a rather free use of a 3 per cent solution of sodium chloride given according to the method of Haden and Orr. As a rule, the operation was preceded by gastric lavage. Whenever possible, local anesthesia was used, sometimes with the addition of ethylene. Before the operation commenced the administration of 3 per cent solution of sodium chloride was started and continued until a quart had been given. The needles were left in place and one or two more quarts given within the next few hours, according to the apparent need. The fact that under almost identical conditions I have been able to cut my operative mortality from 50 per cent to 11.1 per cent in intestinal obstruction, makes me feel that I am justified in drawing the following conclusions: The free use of a hypertonic salt solution is effective in neutralizing the toxemia of intestinal obstruction. It seems clinically that the use of this solution enables the toxic patient to live from one to three days longer and thus be able to recover from his operation, whereas without it he would be quite apt to become toxic and die within a few hours after the obstruction was relieved.

The Treatment of Bronchial Fistulas

DRS. ALBERT E. HALSTEAD and HERBERT F. THURSTON, Chicago: The most common type of bronchial fistula is the bronchopleural occurring in conjunction with pulmonary tuberculosis with tuberculous empyema. These are generally not amenable to surgical treatment. Bronchopleural fistulas occurring in the course of an empyema (nontuberculous) generally close spontaneously when the empyema cavity closes. Irrigation of an epyema cavity in the presence of a bronchial fistula should never be practiced. In bronchocutaneous fistulas arising from abscess or gangrene of the lung, no operative measures aimed at the closure of the fistula should be attempted until the abscess cavity has closed or the gangreneous tissue has sloughed and the cavity has become clean. After the simpler nonoperative methods such as cauterization of the tract have failed to close the fistula, the rational procedure is (*a*) to clear the fistulous tract from its cutaneous orifice to the bronchus by sharp dissection of its epithelial lining and also the surrounding fibrous tissue; (*b*) to close the opening into the bronchus by a purse string suture through the peribronchial connective tissue, and (*c*) to transplant sufficient fat with fascia to fill the depression in the lungs and cover this transplant by a plastic operation on the chest wall, the transferred flap being made up of skin, fascia and muscle.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

172: 313-468 (Sept.) 1926

*Pancreatic Cysts: Seven Cases. J. Friedenwald and T. S. Cullen, Baltimore.—p. 313.
*Preparation and Clinical Application of Scarlet Fever Antitoxin. J. F. Anderson and G. F. Leonard, New Brunswick, N. J.—p. 334.
Present Status of Mercurochrome-220 Soluble. H. H. Davis, Omaha. —p. 340.
*Myocardial Insufficiency Following Arterial Hypertension. G. G. Duncan and A. Rudy, Morristown, N. J.—p. 351.
*Mistakes in Diagnosis, as Seen in Hospital for Far-Avanced Pulmonary Tuberculosis. C. C. Habliston, Baltimore.—p. 367.
Pellagra: Fifty-Six Cases. I. C. Sutton, Hollywood, Calif.—p. 374.
*Relative Value of Roentgen Ray and Physical Signs in Diagnosis and Treatment of Pulmonary Tuberculosis. L. H. Fales, Livermore, Calif. —p. 382.
*Diabetic Children's Diets in Different Clinics. H. Gray, Santa Barbara, Calif.—p. 394.
*Chronic Ligneous Thyroiditis (Riedel's Struma). L. W. Smith and H. M. Clute, Boston.—p. 403.
*Hemangioma of Esophagus: Case. P. P. Vinson, A. B. Moore and H. H. Bowing, Rochester, Minn.—p. 416.
*Prodromal Symptoms in Angina Pectoris. M. H. Kahn, New York. —p. 418.
*Rectal Administration of Epinephrine. W. C. Menninger, Topeka, Kan., and H. S. Heim, Dawson, Neb.—p. 425.

Pancreatic Cyst.—The main symptom pointing to pancreatic cyst is the presence of a tumor usually noted in the left upper quadrant of the abdomen, the surface of which is smooth. Fluctuation is at times observed. As a rule, the mass can easily be differentiated from enlargements associated with the spleen, liver and kidney. Not infrequently a filling defect is produced in the stomach, recognized by roentgen-ray examination which lends additional evidence of the presence of this disease. The only proper treatment is early operation. The procedures to be undertaken are extirpation of the cyst if possible, or drainage following suturing of the cyst to the abdominal wall, which is ordinarily more easily and safely accomplished. The results of operation are usually satisfactory. A malignant degeneration of the cyst is, according to the experience of Friedenwald and Cullen, not an unusual complication; it occurred in three of their seven cases.

Scarlet Fever Antitoxin.—Anderson and Leonard have a record of 130 severe and moderately severe scarlet fever cases treated with antitoxin, in three institutions in three different states, together with eighty-four cases in the same institutions which received no antitoxin. Among the 130 cases, some of which were very severe cases with marked toxemia, there were no deaths, and there were only 4.6 per cent with complications, none of which were of a severe character, or which required surgical intervention. Of the eighty-four mild cases in which no antitoxin was given, there were no deaths, but 28.6 per cent of the patients had complications and sequelae of varying degrees of severity. Some of the complications were of a grave character, requiring surgical intervention, and others entailed a long period of convalescence. The complications in the untreated cases consisted of nephritis of a serious grade, otitis media, mastoiditis and suppurating cervical adenitis.

Myocardial Insufficiency Following Arterial Hypertension.—Dietetic measures seem to provide the most powerful means of preventing and controlling myocardial insufficiency, which is secondary to arterial hypertension. Duncan and Rudy agree that they may and should be observed by the patient at home after preliminary institutional instruction, when the supplementary measures, if any are used, are discontinued. Ten cases are reviewed.

Diagnosis of Advanced Pulmonary Tuberculosis.—Habliston is convinced that the diagnosis of advanced pulmonary tuberculosis presents difficulties which are often greater than those presented by incipient disease, and demands as complete and painstaking an effort on the part of the clinician as any problem in internal medicine, if serious mistakes are to be avoided.

Value of Roentgen Ray in Diagnosis of Pulmonary Tuberculosis.—From a study of 411 cases, 60 per cent of which were found to be tuberculous, Fales believes that the roentgen ray is the most important means of determining the existing pathologic condition of the lungs.

Diet for Diabetic Children.—The expression of diets in calories per kilogram and grams per kilogram of body weight is believed by Gray to reveal more precisely than is now known the diet distributions actually prescribed in the years since insulin became available, and likewise to clarify such trends as diverge sufficiently from the average to demand discussion. Current practice, as seen in 532 reports from different clinics, is tabulated in a variety of ways.

Chronic Ligneous Thyroiditis.—Five cases of Riedel's struma in varying stages of development are presented by Smith and Clute. A discussion of the clinical and laboratory difficulties of diagnosis is given. Comment on the pathologic lesion, supported by unsatisfactory experimental results, confirms the general opinion that the lesion is one of chronic inflammation of unknown etiology.

Hemangioma of Esophagus.—In approximately 4,000 patients complaining of dysphagia examined at the Mayo Clinic, benign tumor was found in only three. One of the tumors was a myoma, one a pedunculated lipoma and one, the case reported by Vinson et al., a hemangioma.

Prodromal Symptoms in Angina Pectoris.—The cases presented by Kahn point out the importance of premonitory symptoms in angina pectoris. Of the eighty-two cases, twenty-five were patients who presented prodromal symptoms. Ten had substernal or epigastric burning sensation. In a few of these, the symptoms of burning manubrial pain and epigastric pressure were combined. Four patients had attacks which were nonanginal in character. In one case, the attack occurred eight years before the angina. In the interval, however, there was continued burning sensation in the manubrium with dyspnea after moderate exertion, indicating a pathologic process going on for a long time. There were two patients with cardiac asthma with pulsus alternans and six with cerebral thrombosis who had symptoms before the angina manifested itself. In seven cases there were prodromal symptoms of dyspnea, palpitation and fatigue on moderate exertion, with other signs and symptoms indicating myocardial impairment before development of angina pectoris. It is therefore evident that the pathologic process which eventually produces the symptoms of angina pectoris is a prolonged one; that there is early involvement of the aorta and coronary arteries long before the anginal symptoms develop. It is therefore important, in the prevention of angina pectoris, to give careful study and attention to premonitory symptoms.

Rectal Administration of Epinephrine.—Menninger and Heim aver that the rectal absorption of epinephrine in relatively large doses is unreliable, producing little or no effect in about 50 per cent of cases. When it is effective, the systemic effect, while slower in reaching a maximum, persists over a much longer time than when the substance is given hypodermically. The rectal method of administration should be of advantage with patients requiring a prolonged effect and repeated doses of epinephrine, as in asthma or Addison's disease.

American Journal of Roentgenology and Radium Therapy, New York

16: 203-302 (Sept.) 1926

*Treatment of Tumors of Bladder by Deep Roentgen-Ray Therapy. C. A. Waters, Baltimore.—p. 203.
*Effect of Irradiation on Ureter. C. L. Martin and F. T. Rogers, Dallas, Texas.—p. 215.
*Treatment of Epithelial Tumors of Bladder. C. F. Burnam and W. Neill, Jr., Baltimore.—p. 219.
Radium in Treatment of Fibroids of Uterus. C. J. Miller, New Orleans.—p. 228.
*Reliability of Cholecystography by Oral Method. W. H. Stewart and E. J. Ryan, New York.—p. 234.

Relative Value of Cholecystography and So-Called Direct and Indirect Methods of Roentgenologic Examination of Gallbladder. J. T. Case, Battle Creek, Mich.—p. 238.
Uterotubal Roentgenography with Lipiodol. I. C. Rubin and A. J. Bendick, New York.—p. 251.
Roentgenologic Study of Head. M. J. Kern, St. Cloud, Minn.—p. 264.

Deep Roentgen-Ray Therapy for Bladder Tumors.—Experience has convinced Waters that the best treatment for superficial papillary carcinoma, whether localized or extensive, is a combination of deep roentgen-ray therapy and radium applied directly to the surface of the growth. Radium alone has given very successful results in the handling of this type of case, but frequently so much irradiation is required that the disappearance of the tumor is often followed by severe radium ulceration. With a combination of radium and roentgen rays, results seem to indicate that most of these tumors can be destroyed with a minimum amount of injury to the bladder. In the infiltrating growths, when operable, radical resection should be carried out. But in 25 per cent of these growths, which were inoperable on account of their location or extent, intravesical radium and deep roentgen-ray therapy should be given a trial, with the probability of securing a certain number of favorable results by this method alone. In cases in which this procedure does not yield results, and in which one believes the growth is sufficiently localized to warrant the implantation of radium needles, the bladder should be opened and screened radium needles implanted throughout the growth. If, however, the growth is so extensive that a total of more than 2,500 milligram hours of radium is necessary in order thoroughly to implant the cancerous area, implantations should not be considered. In those cases which are too extensive for radium implantations, deep roentgen-ray therapy alone should be employed, with the possibility of securing an occasional cure, and at least an alleviation of symptoms in a few cases. The great tendency to recurrence of tumors of the bladder, following their apparent destruction, by fulguration, radium, or deep roentgen-ray therapy, makes it imperative that patients return at frequent intervals for cystoscopic examination. Even in cases that are incurable, regardless of the treatment employed, deep roentgen-ray therapy is an excellent palliative measure, in that it tends to control hemorrhage and to decrease nerve root pains.

Effect of Irradiation on Ureter.—Experiments are described by Martin and Rogers which show that a dose of radium amounting to 75 milligram hours or more applied in steel needles placed alongside the ureter in dogs produces complete stricture formation and hydronephrosis. A dose of 54.3 milligram hours produces partial stricture formation.

Treatment of Bladder Tumors.—Burnam and Neill assert that benign papillomas of small and medium size are best treated by fulguration and direct application of radium through the urethra. In very extensive cases there should be superadded external irradiation by radium or roentgen rays. Whenever an operation is carried out in such a case, it should be followed by postoperative irradiation. Small, malignant papillomas, papillary carcinomas and infiltrating carcinomas can be effectually treated by the transurethral, intravesical, topical application, to which external irradiation should be regularly superadded. In the occasional case localized on the trigon, moderate irradiation from the vagina is also of value. Large, malignant papillomas, papillary carcinomas and infiltrating carcinomas limited to the bladder, so far as this can be determined by preliminary examinations, should be treated somewhat differently in men and in women. In both, if the tumor is not too extensive and limited to a movable part of the bladder, a suprapubic incision should be made and the tumor, with a wide area of bladder wall, removed by resection. If the disease is limited to a portion of the bladder such as the base, where resection is difficult, in the male the disease should be treated by implantation through a suprapubic incision; in the female it is an equally effective and easier procedure to carry out the implantation through the urethra. In all these conditions, topical applicaton should be made through the urethra and transcutaneously through the suprapubic portals. When the entire bladder is involved, the treatment should be limited to topical, intravesical applications and transpubic deep radium and roentgen-ray treatment. When the disease is extravesical, it is usually best to limit the treatment to moderate intravesical applications, usually from the center of the distended viscus, and to heavy external irradiation, crossfiring so as to take in the entire disease from a number of portals. If a case, supposedly limited to the bladder, is found on operative exposure to be already extravesical, it should be implanted at the time of operation, and treatment should then be followed up.

Cholecystography by Oral Method.—Stewart and Ryan maintain that the oral method is absolutely reliable, and take exception to the statement that should the oral method fail it must be checked by the intravenous. In no instance have they been forced to resort to intravenous administration. When a "no shadow" case appears, it is always checked by another oral examination. If the observations are the same, they feel confident that no opaque bile has entered the gallbladder. The authors warn against basing a diagnosis of cholecystitis on a "faint shadow" alone. It is of importance only when associated with other direct or indirect evidence of pathologic change.

American Journal of Surgery, New York

1: 117-176 (Sept.) 1926

*Bursitides of Plantar Surface of Foot. A. E. Hertzler, Halstead, Kan.—p. 117.
Viscroptosis: Surgical Treatment. J. H. Peak, Louisville, Ky.—p. 127.
Fibrocystic Disease of Long Bone. E. H. Eising, New York.—p. 134.
*Dislocation of Inferior End of Ulna. H. Milch, New York.—p. 141.
*Prostatotomy (Electrocautery Punch Method) in Advanced Prostatic Carcinoma: Three Cases. S. C. McCoy, Louisville, Ky.—p. 147.
Method of Preparing Petrolatum Gauze. D. Gordon, New York.—p. 151.
Congenital Stricture of Esophagus: Case. U. Maes, New Orleans.—p. 153.

Bursitides of Foot.—The anatomy and symptomatology of the calcaneal, plantar and lumbrical bursae is discussed by Hertzler. He asserts that the association of gonorrhea with exostoses and a painful condition of the feet has not been proved. The association of pain in the feet with stretching of ligaments rests on the assumption of sensitiveness of ligaments. This conclusion was arrived at by a process of exclusion and is contrary to the facts. Certain painful conditions of the feet occur in regions where bursae are known to exist. The clinical manifestations are similar to those of bursal inflammations in other parts of the body. Obliteration of these bursae by operation cures the patient. Operations based on other hypotheses (e. g., exostosis) do not cure the patient unless the bursae are inadvertently obliterated.

Operation for Dislocation of Ulna.—In the operation suggested by Milch, effort is made to replace the intrinsic ligaments of the joint by a fascial graft which, while supplying the stabilizing force of the triangular cartilage, will not interfere with freedom of motion permitted by the radio-ulnar ligaments. In principle, the operation involves the creation of a fascial sling which is attached to the radius and encircles the neck of the ulna. If this sling is appropriately tightened before it is sutured to the radius, the ulna is drawn snugly into the sigmoid cavity and held there. This fascial band simulates both the triangular and the radio-ulnar ligaments in function.

Prostatotomy for Carcinoma. — In prostatic malignant growths in which radical surgical intervention would probably hasten rather than retard the inevitable fatal termination, McCoy feels that prostatotomy by the electrocautery punch method has a definite field of usefulness. Urinary obstruction is promptly relieved and the patient is thereafter able to urinate through the normal channel without discomfort. The operation is relatively without danger, and may be repeated should necessity arise because of recurrence of obstruction. So long as the patient enjoys freedom from urinary symptoms, his general physical status improves, and there is a possibility that life may be prolonged. The period of hospitalization is minimized.

American Journal of Tropical Medicine, Baltimore

6: 307-381 (Sept.) 1926

*Treatment of Inguinal Granuloma with Thioglycollates of Antimony. G. C. Shattuck, H. G. Little and W. F. Coughlin, Boston.—p. 307.
*Differential Characteristics of Amebae of Man in Culture. J. H. St. John, Washington D. C.—p. 319.

*Cultivation of Endameba Histolytica. C. F. Craig, Washington, D. C. —p. 333.
*Gastro-Intestinal Lavage with Water at Comparatively High Temperatures for Removing Worms from Dogs. M. C. Hall and J. E. Shillinger, Washington, D. C.—p. 341.
Occurrence and Nonoccurrence of Certain Diseases in Costa Rica. S. Núñez, Costa Rica.—p. 347.
*Pellagra: Hydrochloric Acid in Stomach Contents. J. B. Guthrie, New Orleans.—p. 357.
*Experimentally Produced Late Bacteremia and Resolving Plague in Rats. C. L. Williams, Washington, D. C.—p. 367.
Resting Position of Haitian Anopheles. W. A. Hoffman.—p. 377.

Antimony Thioglycollates in Inguinal Granuloma.—Shattuck et al. report three cases of inguinal granuloma in which the thioglycollates of antimony were administered with good effect. Treatment of the first case was by means of sodium antimony thioglycollate intravenously, followed by intravenous or intramuscular injections of the triamide of antimony thioglycollic acid, or thioglycollamide. The second case was treated with antimony thioglycollamide by intravenous injection, the third case by intramuscular injection. Both drugs gave good results in the treatment of cases of inguinal granuloma. Pain in the bones or other severe symptoms of intoxication were not observed, although in one case a fairly large dosage of antimony thioglycollamide was employed. Antimony thioglycollamide brought about a cure in one case when used only by the intramuscular route. Smaller quantities of the solution, 5 cc. or more, caused no local reaction, but injections of 10 cc., containing 0.04 Gm. of the drug, were apt to be followed by some pain, and tenderness locally for a short time. Suppuration did not occur. One case shows that inguinal granuloma may be cured even with small dosage of antimony thioglycollamide. Cure was effected in spite of a strongly positive Wassermann reaction, and without known antecedent treatment for syphilis.

Differentiation of Amebas.—The smaller details of structure and behavior of amebas which have been found to be of value in differential diagnosis are discussed by St. John. He says that, as observed in culture, the definition of the visible structure and observation of the movements peculiar to the species give valuable aid in differentiating the amebas found in man.

Cultivation of Endameba Histolytica.—Craig found that Locke's solution containing one part of either inactivated human, horse or rabbit blood serum, to seven parts of the Locke solution, gave better results than the original Locke-egg-serum medium of Boeck and Drbohlav. It also possesses the great advantage of markedly inhibiting bacterial growth, thus favoring the development of the amebas and prolonging their life in cultures, as the reaction of the medium does not become unfavorable in as short a period of time. In this medium *Endameba histolytica* has remained alive and motile for a period of eleven days, and successful transfers have been obtained in the medium after a period of eight days. Transfers of *Endameba histolytica*, in this medium, made at intervals of twenty-four and forty-eight hours, have been continued for more than three months, and the amebas have not changed in morphology or in their capability for reproduction during this time.

Lavage with Extremely Hot Water to Remove Worms.—Experiments made by Hall and Shillinger with water having an initial temperature of 52, 50 and 49 C. in the container, cooled to 47 and 48 C. and administered in amounts of 4, 3, 2½ and 2 gallons, resulted in the removal of 97.7 per cent of the ascarids, 77 per cent of the hookworms, 51.6 per cent of the tapeworms, and none of the whipworms. The temperature at which the water was used was too high, and resulted in the deaths of half the animals used, the postmortem picture showing hemorrhagic gastro-enteritis and intestinal edema and, in the two dogs dying the day of treatment or the day after, a pulmonary congestion. It is suggested that perhaps water at a lower temperature, such as 45 C., and in amounts not exceeding 2 gallons, would be safe and still show sufficient efficacy in removing worms to warrant its use in cases in which effective anthelmintics were definitely contraindicated; but this possibility should be investigated by critical tests and not assumed to be true, as the available evidence is not sufficient to establish its value or safety. These observations apply immediately in the case of the dog. They suggest a certain amount of caution as advisable in human cases.

Achlorhydria in Pellagra.—Guthrie is inclined to consider the lack of hydrochloric acid as of some diagnostic value in pellagra; in a doubtful case, presenting a normal hydrochloric acid content, he would consider its presence somewhat against the diagnosis of pellagra. From a standpoint of therapy there can be no doubt as to the advisability of supplying hydrochloric acid, if the condition of the mouth, throat and esophagus will permit without causing pain. If the full physiologic quantity cannot be given to the patient, it would seem logical to give it in some quantity with the food or shortly thereafter. Neither the presence or excess of hydrochloric acid, nor its deficiency or its entire absence from the gastric secretion of a pellagrin seems to be of the slightest prognostic value in a case in which the diagnosis is established.

Rats as Plague Carriers.—The work done by Williams suggests that the occurrence of plague "carriers" among rats appears probable.

American Review of Tuberculosis, Baltimore

14: 211-345 (Sept.) 1926

*Tuberculous Infection: XII. Dissemination of Tubercle Bacilli in Immune Guinea-Pig. A. K. Krause, Baltimore.—p. 211.
Id.: XIII. Tracheobronchial Lymph Nodes of Rabbit; Their Blood Supply. H. S. Willis, Baltimore.—p. 237.
Id.: XIV. Localization of Tuberculous Infection in Rabbit, Particularly in Lungs. A. K. Krause, Baltimore.—p. 243.
Id.: XV. Summary of Studies on Tuberculous Infection. A. K. Krause, Baltimore.—p. 271.
Pulmonary Effects of Intratracheal Injections of Tubercle Bacilli and Blood in Rabbits: Roentgenographic Changes Following Hemoptysis. C. R. Austrian and H. S. Willis, Baltimore.—p. 306.
Influence of Frequently Repeated Reinfections on Allergy and Immunity in Tuberculosis. A. K. Krause and H. S. Willis, Baltimore.—p. 316.

Tuberculo-Immunity.—The outstanding and significant feature of tuberculo-immunity in guinea-pigs, Krause says, is not so much the complete inhibition of the activities of tubercle bacilli as a retardation of their spreading within the body.

Annals of Clinical Medicine, Baltimore

5: 229-317 (Sept.) 1926

Electrocardiogram and Myocardial Function. A. F. Jennings, Detroit. —p. 229.
Cardiac Clinic: Electrocardiography. W. J. Wilson, Detroit.—p. 238.
Clinic on Endocrinopathies. R. C. Moehlig, Detroit.—p. 247.
Clinic on Hypothyroidism. C. J. Marinus, Detroit.—p. 253.
Etiology of Castroduodenal Ulcer. B. C. Lockwood, Detroit.—p. 259.
Esophageal Obstructions. C. E. Vreeland, Detroit.—p. 264.
Prostate from Standpoint of Internist, as Viewed by Urologist. H. W. Plaggemeyer, Detroit.—p. 275.
Cystoscopy and Ureteral Catheterization: Value in Internal Disease. R. E. Cumming, Detroit.—p. 281.
Treatment of Empyema in Children. G. C. Penberthy and H. C. Saltzstein, Detroit.—p. 284.
Results in Treatment of Whooping Cough. M. B. Kay, Detroit.—p. 288.
Gonorrheal Arthritis of Knee. R. V. Funston, Detroit.—p. 295.
Infectious (Epidemic) Jaundice. R. A. C. Wollenberg, Detroit.—p. 297.
Bacterial Endocarditis. J. L. Chester, Detroit.—p. 305.

Annals of Medical History, New York

8: 213-330 (Sept.) 1926

John Redman. W. S. Middleton, Madison, Wis.—p. 213.
Operative Story of Heart. C. S. Beck, Cleveland.—p. 224.
Teachers and Textbooks of Medicine in Medieval University of Paris. S. d'Irsay, New Haven, Conn.—p. 234.
Use of Unicorn's Horn, Coral and Stones in Medicine. W. G. A. Robertson, Edinburgh, Scotland.—p. 240.
Poore's Plague and Mr. Pepys. G. R. Owen, Los Angeles.—p. 249.
Dr. Bernard de Mandeville and His Fable of Bees. J. H. Lloyd, Philadelphia.—p. 265.
Sir William Lawrence: In Relation to Medical Education with Special Reference to Ophthalmology in Early Part of Nineteenth Century. B. Cance, Philadelphia.—p. 270.
Studies in Paleopathology: XVII. Alveolar Abscess in Mandible of Extinct Mammal. R. L. Modic, Chicago.—p. 280.
History of Herpes from Earliest Times to Nineteenth Century. C. G. Cumston, Geneva, Switzerland.—p. 284.
Pioneer Medicine in Western Pennsylvania: Part II. T. Diller, Pittsburgh.—p. 292.

Boston Medical and Surgical Journal

195: 697-736 (Oct. 7) 1926

Significance of Constitutional Factors in Genetic Relations of Psychoses. A. M. Barrett, Ann Arbor, Mich.—p. 697.
*Hysterical Paraplegia of Many Years' Duration, Responding Well to Treatment. G. P. Reynolds, Boston.—p. 704.
Clock for Cardiac Clinic. A. S. Hyman, New York.—p. 707.

Hysterical Paraplegia.—Reynolds reports the case of a widow, aged 51, with a past history of much mental trauma, who had had, for eleven years, a complete paraplegia of the hysterical type. No attempt was made at complete psychanalysis, as the patient's low grade of intelligence made such an investigation seem inadvisable. She was, however, aided to walk by means of electrical stimulation and suggestion. Thirteen months after discharge from the hospital, she has shown no signs of a return of her paralysis, but has not proved herself capable of more than partial self-support. She has recently, however, shown a definite increase in mental independence in her decision to return to her native town and to seek work there.

Georgia Medical Association Journal, Atlanta

15: 339-377 (Sept.) 1926

*Amyotonia Congenita. E. B. Block, Atlanta.—p. 339.
Fallacy of Indigestion as Diagnosis. J. C. Patterson, Cuthbert.—p. 344.
Importance of Child Welfare Work to Community. L. Gerdine, Athens.—p. 348.
Ectopic Gestation. H. M. Fullilove, Athens.—p. 352.
Tubal Pregnancy. J. H. Nicholson, Atlanta.—p. 354.

Amyotonia Congenita.—An unusual feature in Block's case was the age of the patient, 18 years, but her trouble dated from birth. The patient's paternal uncle and paternal grandaunt died from tuberculosis. The paternal great-grandfather died from cancer of the throat, and two paternal great-uncles died from cancers of the throat and mouth. One paternal grandaunt had cancer of the uterus. There were no nervous or mental diseases in the family, nor any trouble such as this patient had, although her father's sister's daughter, aged 17 years, is very limber. She can bend backward, and stand on her feet and hands, and can kick her head. She can bend her index finger back and touch the back of her hand, but has not the same disease as this patient. The basal metabolic note was lowered. The pulse became distinctly slower while she was taking thyroid extract. The patient died during sleep, probably from heart failure.

Iowa State Medical Society Journal, Des Moines

16: 395-432 (Sept.) 1926

Epidemic Encephalitis. G. E. Price, Spokane, Wash.—p. 395.
Analgesia in Obstetrics. L. M. Randall, Rochester, Minn.—p. 401.
Diagnosis and Management of Abortions. P. E. Stuart, Nashua.—p. 403.
Study in Immunology. R. E. Gunn, Boone.—p. 407.
Scabies. R. E. Jameson, Davenport.—p. 408.
Knotted Rubber Tubing in Bladder. C. L. Henld, Cedar Rapids.—p. 410.
Pickle Jar in Rectum. J. P. Sharon, Ft. Dodge.—p. 411.
Isolation of Gonococcus from Chronic Urethritis. C. C. Saelhof, Chicago.—p. 411.

Journal of Biological Chemistry, Baltimore

70: 1-284 (Sept.) 1926

Association of Double Bond with Lactone Group in Cardiac Aglucones. W. A. Jacobs, A. Hoffmann and E. L. Gustus, New York.—p. 1.
Influence of Insulin on Acetaldehyde Formation in Body of Animals. J. V. Supniewski, Toronto.—p. 13.
*Intestinal Chemistry: IV. Food Utilization or Digestibility. O. Bergeim, Chicago.—p. 29.
*Id.: V. Carbohydrates and Calcium and Phosphorus Absorption. O. Bergeim, Chicago.—p. 35.
*Id.: VI. Absorption in Different Parts of Gastro-Intestinal Tract. O. Bergeim, Chicago.—p. 47.
*Id. VII. Absorption of Calcium and Phosphorus in Intestines. O. Bergeim, Chicago.—p. 51.
Production of Conjugated Glycuronic Acids in Depancreatized Dogs. A. J. Quick, Philadelphia.—p. 59.
*Id.: IX. Carbohydrate Metabolism: Influence of Insulin and Muscle Tissue on Glucose in Vitro. C. Lundsgaard and S. A. Holbøll, Copenhagen, Denmark.—p. 71.
*Id.: X. Occurrence of Insulin Complement in Muscles of Warm and Cold Blooded Animals. C. Lundsgaard, S. A. Holbøll and A. Gottschalk, Copenhagen, Denmark.—p. 79.
Id.: XI. Occurrence of New-Glucose in Course of Fermentation of α-β Glucose. C. Lundsgaard, S. A. Holbøll and A. Gottschalk, Copenhagen, Denmark.—p. 83.
*Id.: XII. Properties of Insulin Complement. C. Lundsgaard, S. A. Holbøll and A. Gottschalk, Copenhagen, Denmark.—p. 89.
Recrystallization of Urease. J. B. Sumner, Ithaca, N. Y.—p. 97.
Amino-Acid Catabolism: I. Fate of γ-Amino Butyric Acid and δ-Amino Valeric Acid in Phlorhizinized Dog. R. C. Corley, New Orleans.—p. 99.
Ephedrine and Its Salts. T. Q. Chou, Peking.—p. 109.
Gas Analysis Apparatus Modified for Determination of Methane in Metabolism Experiments. T. M. Carpenter and E. L. Fox, Boston.—p. 115.
Antirachitic Value of Irradiated Cholesterol: II. Separation into Active and Inactive Fraction. A. F. Hess, M. Weinstock and E. Sherman, New York.—p. 123.
*Liberation of Adsorbed Substances from Proteins: II. Effect of Addition of Sodium Oleate to Whole Blood on Nonprotein Nitrogen in Blood Filtrates. S. M. Rosenthal, Montreal.—p. 129.
Physiologic Significance of Deamination in Relation to Glucose Oxidation. H. B. Speakman, Toronto.—p. 135.
*Identification of Acetaldehyde in Normal Blood and Its Quantitative Study in Blood of Normal and Diabetic Dogs. A. H. Gee and I. L. Chaikoff, Toronto.—p. 151.
Specific Rotatory Power of Glucose-Insulin Solutions in Contact with Muscle Tissue in Vitro. H. H. Beard and V. Jersey, Cleveland.—p. 167.
Method for Determination of Allantoin in Rabbit Urine. A. A. Christman, Ann Arbor, Mich.—p. 173.
*Phosphorus Content of Human Milk and Cow's Milk. E. Lenstrup, Copenhagen, Denmark.—p. 193.
Donnan Equilibrium and Osmotic Pressure Relationship Between Cells and Serum. H. Wu, Peking.—p. 203.
Colorimetric Estimation of Cholesterol and Lecithin in Blood in Connection with Folin and Wu's System of Blood Analysis. G. M. De Toni, Alessandria, Italy.—p. 207.
Configurational Relationships of Dialkylacetic Acids. P. A. Levene and L. W. Bass, New York.—p. 211.
Racemization: IV. Action of Alkali on Ketopiperazines and on Peptides. P. A. Levene and M. H. Pfaltz, New York.—p. 219.
Ionization of Pyrimidines in Relation to Structure of Pyrimidine Nucleosides. P. A. Levene, L. W. Bass and H. S. Simms, New York.—p. 229.
Effect of Ionization on Optical Rotation of Nucleic Acid Derivatives. P. A. Levene, H. S. Simms and L. W. Bass, New York.—p. 243.
Relation of Chemical Structure to Rate of Hydrolysis of Peptides: III. Enzyme Hydrolysis of Dipeptides and Tripeptides. P. A. Levene, H. S. Simms and M. H. Pfaltz, New York.—p. 253.
Critical Evaluation of Hahn's Quantitative Method for Determining Protein and Proteose. F. B. Seibert, Chicago.—p. 265.
Some Nitrogenous Constituents of Cauliflower Bud: I. Protein Fractions. M. C. McKee and A. H. Smith, New Haven, Conn.—p. 273.

Food Digestibility.—A simplified method is presented by Bergeim for the determination of food digestibility and utilization. Iron oxide is added to the food, and by determining the ratio of the amount of any given food substance to the amount of iron in the food and in the feces, the percentage utilization may be calculated. An accurate account of food ingested, separation and complete collection of feces are not essential for this method, which thus becomes available in many cases in which the more elaborate procedure would not be employed.

Calcium and Phosphorus Absorption.—A procedure for the study of calcium and phosphorus utilization is described by Bergeim. Common carbohydrates were added to the diets of rachitic animals to make up from 25 to 50 per cent of such diets, and calcium and phosphorus absorption were studied. Starch, glucose, fructose and maltose in amounts of 25 per cent did not increase calcium or phosphorus absorption. When 50 per cent was added, there was some increase in absorption. Dextrin showed little effect in the smaller amounts, but a distinct effect in the larger quantities. Lactose, even in the proportion of 25 per cent, led to pronounced increases in the amounts of calcium and phosphorus absorbed, being in this respect far superior to glucose, sucrose, maltose or starch, and superior to dextrin. The effect was greater on calcium than on phosphorus absorption. The influence of lactose and to a lesser extent of dextrin and other carbohydrates on calcium absorption is believed to be due to increased lactic acid fermentation in the intestines, with resulting increased acidity of the intestinal contents. Lactose did not prevent the development of rickets on diets high in calcium but low in phosphorus and antirachitic substance.

Absorption from Gastro-Intestinal Tract.—A procedure is outlined by Bergeim for the study of absorption from the gastro-intestinal tract. The ratio of the amount of ferric oxide or other unabsorbable substance to the amount of any other substance present is determined for the food and for the intestinal contents at different levels of the tract. The change in ratio is a quantitative index of the extent of absorp-

tion from or excretion into the intestine. Digestive and other chemical changes may also be followed.

Absorption of Calcium and Phosphorus from Intestine.—The absorption of calcium and phosphorus from different parts of the gastro-intestinal tract of albino rats was studied by Bergeim. Animals rendered rachitic by phosphorus-low diets, as well as such animals given cod liver oil, showed a considerable degree of calcium absorption from the small intestine. The rachitic condition could not therefore be due to a failure to absorb calcium. Both groups of animals showed a considerable secretion of phosphate into the upper tract. This secretion appears to be an important factor in promoting calcium absorption, as the latter was most rapid when the phosphorus : calcium ratio was highest. The animals given cod liver oil showed a positive calcium balance throughout the intestine. Phosphorus secreted into the upper tract was absorbed in the lower intestine to produce an ultimate positive balance of this element. In the rachitic animals, the calcium absorbed in the upper intestine was excreted into the lower intestine, leading to a negative or subnormal balance. Coincident with this marked excretion of calcium into the lower bowel, there was a failure of phosphate to be reabsorbed adequately, and hence a loss of the latter to the body. The failure of absorbed calcium to be used in calcification is believed to be due to the low phosphate concentration of the blood. Antirachitic substance may act to elevate blood phosphate by promoting the breakdown of organic tissue phosphates, thus leading to increased deposition of calcium with lessened excretion into the intestine, and consequent better absorption of phosphate therefrom.

Influence of Insulin and Muscle Tissue on Glucose.—It is stated by Lundsgaard and Holbøll that the active substance in muscle tissue does not transform α-β-glucose into a form which insulin can then alone convert into new-glucose. Insulin does not change α-β-glucose into a form which can then be converted into new-glucose by the active substance in muscle tissue. Within the period of the experiment, it cannot be shown that insulin and the active substance in muscle tissue influence one another in such a way that one of them can convert α-β-glucose into new-glucose by itself. The action of the two factors on α-β-glucose must, therefore, be simultaneous within the period of two hours. It is proposed for the present to call the active substance or principle in muscle tissue "insulin complement."

Occurrence of Insulin Complement in Muscles.—The substance or principle (insulin complement) demonstrated by Lundsgaard et al. in the muscles of warm blooded animals, which in conjunction with insulin is capable of converting α-β-glucose into new-glucose, has also been detected in the muscles of cold blooded animals representing different classes of the animal kingdom. Unlike the insulin complement from the muscles of warm blooded animals, that from cold blooded animals is active at 20 C. The experiments show that the first step in carbohydrate metabolism is the same thoroughout the animal kingdom.

Properties of Insulin Complement.—Lundsgaard et al. assert that insulin complement is not identical with the muscle coferment demonstrated by Meyerhof in 1918. Insulin complement is not removed from muscle by washing with water. Insulin complement will not tolerate heating to 70 C. for two minutes. Insulin complement cannot be detected in the expressed juice of muscle (prepared by Buchner's method), but must be assumed to be combined with the intact cell stroma.

Effect of Sodium Oleate on Blood Nitrogen.—Rosenthal shows that, by the addition of 25 mg. of sodium oleate per cubic centimeter of whole blood, it is possible to increase the nonprotein in the blood filtrates from 20 to 55 per cent. This increase is due to the liberation of nonprotein nitrogenous substances which ordinarily remain attached to the proteins and do not appear in the filtrates.

Acetaldehyde in Normal and Diabetic Blood.—The presence of acetaldehyde in normal blood has been verified by Gee and Chaikoff. Normal dog's blood contains from 2 to 6 mg. of acetaldehyde per liter. There is no significant increase of acetaldehyde in the blood following pancreatectomy.

Phosphorus Content of Milk.—Analyses were made by Lenstrup of fifteen samples of normal human milk, and of fifteen samples of normal herd milk of cows as to the average amounts of phosphorus in each. Human milk contained 14.2 per cent of phosphorus, and cow's milk 95.4 per cent. Of this amount, 2.6 per cent in human milk and 17.1 per cent in cow's milk was acid insoluble phosphorus. The acid-insoluble phosphorus (precipitated by trinitrophenol) was found to be about 98.5 per cent casein phosphorus, with a trace of lipoid phosphorus. Weekly determinations of the phosphorus fractions in herd milk showed the same values for casein and acid-soluble organic phosphorus throughout the year. Inorganic phosphorus, however, was lower during the three summer months, when the animals were in pasture, than during the other nine months.

Johns Hopkins Hospital Bulletin, Baltimore

39: 121-198 (Sept.) 1926

*Formation of Toxic Fluid Found in Isolated Duodenojejunal Loops. L. Braeye, Ghent, Belgium.—p. 121.
Wassermann Test in Normal and Syphilitic Rabbits. J. E. Kemp, A. M. Chesney and A. K. Poole, Baltimore.—p. 132.
*Origin of Phagocytic Cells in Rabbit. C. Eliot, Baltimore.—p. 149.
Bacillus Ozaenae Foetidae, Perez, and Bacillus Proteus in Ozena. A. Michailoff, Baltimore.—p. 158.

Formation of Toxic Fluids Found in Isolated Intestinal Loops.—Braeye reports the results of experiments dealing with the study of closed high intestinal loop fluid, and more especially, with the time required (1) for the accumulation of this fluid and (2) for the development of toxicity in it. Evidence is given to prove that ten hours is the minimal time required for formation of an appreciable amount of this fluid, and that this accumulation is able to cause distention gangrene as early as twenty hours after the obstruction. Intravenous injection of 25 cc. of this fluid kills a small dog in a few hours, with the typical symptoms and pathologic results assumed to constitute a criterion for its toxicity. The toxic properties, as a rule, take more than thirty-six hours to develop.

Origin of Phagocytes.—Eliot states that, by means of the intravenous injection into the rabbit of white blood cells which have ingested carmine particles, it is possible to produce the same picture in the organs of this rabbit as occurs in those of a rabbit which has received an injection of carmine particles directly. This method shows that the so-called reticulo-endothelial system, i. e., the system of phagocytic cells located in various organs of the body, is made up largely of transformed white blood cells which have left the blood stream because they have become abnormal, either through phagocytosis or through some injury.

Journal of General Physiology, Baltimore

10: 1-203 (Sept. 20) 1926

Enzyme Action: XXXVIII. Ester-Hydrolyzing Actions of Whole Eel. H. M. Noyes, I. Lorberblatt and K. G. Falk, New York.—p. 1.
Micrurgic Studies in Cell Physiology: II. Action of Chlorides of Lead, Mercury, Copper, Iron and Aluminum on Protoplasm of Ameba Proteus. P. Reznikoff, New York.—p. 9.
Simple Electro-Ultrafilter. J. J. Bronfenbrenner, New York.—p. 23.
Interpretation of Lactation Curve. W. L. Gaines, Urbana, Ill.—p. 27.
Rate of Respiration as Related to Age. J. M. Hover and F. G. Gustafson, Ann Arbor, Mich.—p. 33.
Influence of Polarized Light on Growth of Seedlings. D. I. Macht, Baltimore.—p. 41.
Curves of Growth, Especially in Relation to Temperature. W. J. Crozier, Cambridge, Mass.—p. 53.
Exit of Dye from Living Cells of Nitella at Different p_H Values. M. Irwin, New York.—p. 75.
Inhibition of Cypridina Luminescence by Light Methylene Blue. E. N. Harvey, Princeton, N. J.—p. 103.
Temperature Characteristics for Duration of Instar in Cladocerans. L. A. Brown, Cambridge, Mass.—p. 111.
Influence of Light, Temperature and Other Conditions on Ability of Nitella Cells to Concentrate Halogens in Cell Sap. D. R. Hoagland, P. L. Hibbard and A. R. Davis, Berkeley, Calif.—p. 121.
Effect of p_H on Germicidal Action of Soaps. A. H. Eggerth, New York.—p. 147.
Swelling Pressure of Gelatin and Mechanism of Swelling in Water and Neutral Salt Solutions. J. H. Northrop and M. Kunitz, New York.—p. 161.
Effect of p_H on Permeability of Collodion Membranes Coated with Protein. D. I. Hitchcock, New York.—p. 179.
Temperature Characteristics for Speed of Movement of Thiobacteria. W. J. Crozier and T. J. B. Stier, Cambridge, Mass.—p. 185.
Stereotropism in Rats and Mice. W. J. Crozier and G. Pincus, Cambridge, Mass.—p. 195.

Journal of Immunology, Baltimore

12: 83-175 (Aug.) 1926

Biochemical Racial-Index of Japanese in Northern Part of Middle Japan. T. Furuhata and T. Kishi, Kanazawa, Japan.—p. 83.
Biochemical Racial Index of Ainu, Gilyak and Orokko in Karafuto (Saghalien). T. Kishi, Kanazawa, Japan.—p. 91.
*Immunologic Studies in Tuberculosis: IV. Resistance to Infection of Animals Sensitized with Killed Tubercle Bacilli. S. A. Petroff and F. W. Stewart, Trudeau, N. Y.—p. 97.
*Nonspecific Activation in Complement Fixation Test of Alcohol Soluble Antigens of Tubercle Bacillus. L. Dienes and L. D. Scheff, Asheville, N. C.—p. 123.
Antigenic Substances of Tubercle Bacillus. L. Dienes and J. Freund, Asheville, N. C.—p. 137.
Antigenic Properties of Pollen Fractions. A. H. W. Caulfeild, C. Cohen and G. S. Eadie, Toronto.—p. 153.

Induced Tuberculin Hypersensitiveness.—Five series of experiments with guinea-pigs sensitized with dead tubercle bacilli are reported by Petroff and Stewart, in which tuberculin hypersensitiveness was induced with dead tubercle bacilli. During the allergic state, inoculations of living tubercle bacilli were made with the use of approximately the same number of normal control animals. The sensitized animals outlived the controls an average of forty-six days. The amount of macroscopic disease at necropsy in the former was much less extensive than in the latter, confirming the belief that dead tubercle bacilli can induce some degree of protection. A small series of guinea-pigs was sensitized with Dreyer's defatted tubercle bacilli. They produced only a mild skin hypersensitiveness, and even that not uniformly. No appreciable resistance could be observed in these animals.

Tuberculosis Complement Fixation Test.—It was found by Dienes and Scheff that the potency of certain preparations obtained from the alcohol extract of the tubercle bacillus as antigen in the complement fixation was increased from eighty to 160 times by the addition of commercial lecithin. The potency of the original alcohol, ether and watery extract was increased considerably less (from 2 to 10 times). Substances separated from the alcohol extract of the tubercle bacillus or cholesterin had no effect on the potency of the preparations. One millionth of a milligram of the specific substance (the dilution 1:400,000,000) in combination with lecithin was enough to cause as antigen a complete reaction in vitro. The significance and eventual consequences of these observations for the understanding of certain serologic reactions are briefly discussed.

Journal of Urology, Baltimore

16: 157-230 (Sept.) 1926

*Diverticulum of Ureter: Acute Inflammation and Spontaneous Perforation. A. R. Stevens, New York.—p. 157.
*Ureteral Dilatation of Pregnancy. W. J. Carson, Baltimore.—p. 167.
*Renal Sympathectomy. E. Hess, Erie, Pa.—p. 191.
*Echinococcus Cyst of Kidney. L. F. Huffman, Cleveland.—p. 197.
Cryoscopy in Determination of Differential Kidney Function. A. E. Jones, Chicago.—p. 205.
*Sarcoma of Bladder. J. R. Caulk, St. Louis.—p. 211.
*Bladder Spasm and Bladder Splint. E. L. Keyes, New York.—p. 225.
*Multiple Urethral Calculi. J. W. Boger, Sedalia, Mo.—p. 229.

Diverticulum of Ureter.—The case reported by Stevens presented two small sacculations at about the ureteropelvic junction, one of which had ruptured. This would probably have been passed over as a perforated ulceration, had the second nonperforated sacculation not been discovered, less than 1 cm. from the other. These were studied histologically, and proved to be lined by epithelium similar to that of the ureter, and to be the seat of an acute inflammatory process such as was present elsewhere in the ureteral and pelvic walls, as well as in the kidney.

Ureteral Dilatation of Pregnancy.—Ureteral dilatation was found by Carson at necropsy in sixteen cases of pregnancy. Twelve were bilateral and four were unilateral. Microscopic examination showed definite changes in all cases. In one case, an early ureteral stricture was present. In two cases, ureteral strictures of long standing were encountered. Ureteral strictures—inflammatory in origin—were found in three cases.

Renal Sympathectomy.—The two cases reported by Hess show that while renal sympathectomy does not remove the pathologic condition, it certainly does relieve the symptoms in painful kidneys. The operation throws the throttle wide open for the elimination of increased fluids of low specific gravity from the kidney so treated.

Echinococcus Cyst of Kidney.—Huffman insists that hydatid of the kidney should be kept in mind in treating patients suffering from symptoms of renal tumor who have formerly lived in countries where echinococcus infestation is common. Occasionally, the diagnosis is simplified by the passage of daughter cysts through the urethra. Locally, the signs and symptoms are those of a renal tumor. It appears that hematuria is less constant than in other kinds of tumor of the kidney. Huffman's patient was a native of Italy. The kidney was the only organ affected.

Sarcoma of Bladder.—The sarcoma of the bladder in Caulk's case appeared eight years after the patient's breast had been removed for sarcoma. The tumor almost filled the bladder cavity. It was removed and proved to be a large cell sarcoma. The patient, aged 71, died in four months of pneumonia.

Bladder Spasm and Bladder Splint.—To relieve bladder spasm, Keyes has applied a modified decompression apparatus to act merely as a bladder splint. The apparatus is that of decompression; viz., an open tubing attached to an indwelling catheter, terminating in a U-tube over the top of an irrigating can. The elevation required is so slight that the manometer is omitted as of no importance. The elevation should be no more than 6 inches at most above the level of the bladder, and the correct application of the apparatus, on which its efficiency depends, requires the utmost gentleness and patience.

Multiple Urethral Calculi.—Boger reports a case in which twenty-two stones were lodged at the penoscrotal junction. Each stone was faceted, forming a continuous chain back to the neck of the bladder.

Kentucky Medical Journal, Bowling Green

24: 399-468 (Sept.) 1926

Treatment of Diabetes Mellitus. R. H. Davis, Louisville.—p. 430.
Disabling Deformities Following Infantile Paralysis. W. B. Owen, Louisville.—p. 438.
Occupational Therapy for Crippled. J. D. Trawick, Louisville.—p. 442.
Cesarean Section: Case. M. Casper, Louisville.—p. 449.
Large Tumor of Axilla: Case. F. P. Strickler, Louisville.—p. 452.
Cancer of Anus, Rectum and Colon. W. E. Applehaus, Louisville.—p. 453.
Cancer of Urogenital Tract. C. G. Hoffman, Louisville.—p. 454.
Prognosis of Cancer. D. Y. Keith, Louisville.—p. 455.
Prevalence, Prognosis and Prophylaxis of Cancer. J. B. Lukins, Louisville.—p. 457.
Cancer of Breast and Uterus. J. W. Price, Louisville.—p. 459.
Cancer. A. D. Willmoth, Louisville.—p. 461.
Id. J. G. Sherrill, Louisville.—p. 462.
Id. L. Frank, Louisville.—p. 464.
Molluscum Contagiosum Confined to Scalp. W. J. Young, Louisville.—p. 467.

Laryngoscope, St. Louis

36: 623-700 (Sept.) 1926

Paracusis. V. O. Knudsen and I. H. Jones, Los Angeles.—p. 623.
Developmental Deformity of Nose Corrected by Bone and Cartilage Transplants. W. W. Carter, New York.—p. 664.
Hematoma of Soft Tissues of Throat, Necessitating Tracheotomy, Tonsillectomy Complication. L. A. Schall, Boston.—p. 666.
Osteoma of Frontal Sinus Without External Manifestation. H. I. Lillie and C. M. Anderson, Rochester, Minn.—p. 668.
Use of Opaque Substances to Localize Lung Abscess. E. J. Ryan, New York.—p. 674.
Pemphigus of Mouth and Pharynx. C. C. Fox, Philadelphia.—p. 676.
Patient Who Can Speak, Sing and Hum, Without Use of Vocal Cords. P. M. Marafioti, New York.—p. 682.
Foreign Body (Rubber Tubing) in Bronchus. M. E. Newman, Buffalo.—p. 685.

Occupational Therapy and Rehabilitation, Baltimore

5: 242-328 (Aug.) 1926

Psychiatric Point of View to Occupational Therapist. M. MacLachlan, New York.—p. 243.
Following Prescription in Occupational Therapy. C. L. Vaux, New York.—p. 251.
Problem of Cripple. E. F. Allen.—p. 259.
Vocational Advisement and Guidance. W. I. Hamilton and T. B. Kidner.—p. 267.
How Can Occupational Therapy Help Social Service Worker? H. A. Robeson, New York.—p. 277.
Vision of Occupational Therapy Production and Cost Records. L. J. Haas, New York.—p. 287.
Economic Studies of Crafts: XIV. Weaving. W. R. Dunton, Jr., Catonsville, Md.—p. 293.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Acta Scholae Medicinalis, Kioto, Japan

8: 299-424, 1926

*Blood Pressure in Aortic Insufficiency. T. Kuraya.—p. 299.
Chemical Specificity of Albumins. R. Kimura.—p. 309.
Study of Cross Section of Long Bones of Japanese: II. H. Miyamoto. —p. 323.
Id.: III. Study of Cross Section of Tibia, Fibula and Ossa Metatarsalia. H. Miyamoto.—p. 333.
*Mechanism of Crisis in Pneumonia: I. Absorption of Organic and Inorganic Substances Through Alveolar Walls. R. Kosaka.—p. 341.
*Id.: II. Influence on Elements in Lung-Aveoli by Perfusion with Ferment. R. Kosaka.—p. 353.
*Id.: III. Antidotal Action in Lung. R. Kosaka.—p. 361.
Cataphoresis of Bacteria. K. Tomita.—p. 369.
Anatomy of Sympathetic Nervous System: IV. Truncus Sympathicus Cervicalis of New-Born and Fetuses. Y. Matsui.—p. 397.

Blood Pressure in Aortic Insufficiency.—Kuraya found that the blood pressure of a rabbit which was artificially placed in a state of aortic insufficiency begins to fall on the second day and in very sick rabbits it does not rise again. The animal dies after two or three days, or within a week. In the ordinary case, the blood pressure returns to normal within a week, and gradually goes above the normal.

Mechanism of Crisis in Pneumonia.—The investigations made by Kosaka do not point to any conclusion of immediate value. The important fact to be kept in mind is that the alveolar wall has a great tendency to absorb the majority of substances and carry them directly into the blood circulation.

Id.—Kosaka states that substances having an impermeant nature in the alveoli are soluble by association with some ferment and are absorbed into the circulation. Presumably, proteolytic enzymes in the blood of pneumonia play an essential rôle in the autolytic process at the crisis.

Id.—The experiments made by Kosaka lead to the conclusion that any kind of monovalent phenol injected into the lung alveoli through the trachea certainly produced the etheric sulphuric acid in the lung alveoli or somewhere else in the lung tissue, which then passed through the lung alveolus wall and flowed out into the outflow fluid of the perfusion.

British Medical Journal, London

2: 583-620 (Oct. 2) 1926

Placenta Praevia. J. Barris.—p. 583.
*Radium Therapy of Mikulicz's Disease. A. E. H. Pinch.—p. 586.
New Method of Preparing Tuberculin. H. H. Thomson.—p. 587.
Case of Transverse Ectopia of Testis. A. G. Banks.—p. 589.
Nephro-Ureteral Anastomosis After Complete Avulsion of Ureter. R. C. Begg.—p. 589.
*Eczema and Dental Disease. A. A. Gomes.—p. 590.
Leukemia and Allied Conditions. G. L. Gulland.—p. 590.
Id. S. W. Patterson.—p. 593.
Living Tissue Cell. T. S. P. Strangeways.—p. 596.
Three "Foreign" Uses of Esophageal Catheters. W. M. Eccles.—p. 597.
Cardiac Massage for Postoperative Collapse. W. Stansfield.—p. 597.
*Retrobulbar Neuritis (Toxic). C. G. K. Sharp.—p. 597.
*Herpes and Varicella. H. Pereira.—p. 597.

Radium Therapy of Mikulicz Disease.—In both cases reported by Pinch the condition was bilateral, but in one the lacrimal glands were not definitely attacked. In the other, the disease was asymmetrical, affecting the lacrimal and submaxillary gland on one side, and only the parotid gland on the other. One patient had a definite syphilitic history, and the Wassermann reaction was strongly positive. The other patient had enjoyed good general health all her life. The extremely rapid response to radium treatment is believed to be due to the pathologic nature of the malady—namely, an intense lymphocytic infiltration of the sustentacular tissue of the glands; the lymphocyte being of all cells the most susceptible to radium irradiation.

Eczema and Dental Disease.—Gomes relates a case of eczema in which this disease promptly disappeared following the extraction of twenty badly infected teeth.

Toxic Retrobulbar Neuritis.—Although only a moderate smoker of mild tobacco, Sharp's patient had a tobacco amblyopia which speedily disappeared when the patient eschewed the use of tobacco.

Herpes and Varicella.—Pereira reports this experience: June 15, a boy, aged 9 years, developed unilateral intercostal herpes, which gradually subsided. July 2, the remaining five children in the family, including a girl, aged 12, showed definite chickenpox, while the lad who suffered with herpes was unaffected.

Indian Journal of Medical Research, Calcutta

14: 1-244 (July) 1926

Epidemiology of Cholera (III). A. J. H. Russell.—p. 1.
*Epidemic of Alastrim-Like Disease in Madras. D. A. Turkhud and C. G. Pandit.—p. 27.
Differentiating Lactose Fermenting Organisms as Applied to Indian Conditions. J. Cunningham and T. N. S. Raghavachari.—p. 41.
Applicability of Koser's Citrate Utilization Test to Sanitary Water Analysis in India. T. N. S. Raghavachari.—p. 47.
Heat-Stroke in Allahabad Independent Brigade Area in Relation to Meteorological Conditions. F. H. G. Hutchinson.—p. 53.
Trenching of Night-Soil. J. L. Das.—p. 101.
Researches in Sprue. (1924-1925). N. H. Fairley and F. P. Mackie.—p. 105.
Fallacies Connected with Testing of Drugs for Their Efficiency in Treatment of Leprosy. E. Muir.—p. 125.
*Estimation of Minute Quantities of Quinine in Blood. A. C. Roy.—p. 129.
*Wassermann Reaction in Malaria. R. B. Lloyd and G. C. Mitra.—p. 135.
*Chemical Composition and Antidiabetic Properties of Silajit. R. N. Chopra, J. P. Bose and N. N. Ghosh.—p. 145.
Origin of Urobilin in Persons Who Have Suffered from Chronic Malaria. T. A. Hughes.—p. 157.
Staining and Mounting of Sandflies. R. O. A. Smith.—p. 171.
Malaria Map of India. S. R. Christophers and J. A. Sinton.—p. 173.
*New Schistosome Infection of Man; Other Human Fluke Infections in India. A. C. Chandler.—p. 179.
Prevalence and Epidemiology of Hookworm and Other Helminthic Infections in India. A. C. Chandler.—p. 185.
Id.: II. A. C. Chandler.—p. 195.
*Effects of Administration of Sugar, Magnesium Sulphate, Sodium Citrate and Dilute Acid on Liver Damage Done by Carbon Tetrachloride. A. C. Chandler and R. N. Chopra.—p. 219.
Oral Administration of Stovarsol in Treatment of Tertian Malaria. J. A. Sinton.—p. 227.
Box for Class Demonstrations of Mosquitoes and Other Small Insects. J. A. Sinton.—p. 235.
Conorhinus Rubrofasciatus, de Geer, and Indian Kala-Azar. H. E. Shortt, P. J. Barraud and A. C. Craighead.—p. 239.
Experimental Infection of Jackal (Canis Aureus) with Piroplasma Canis, Prana and Galli-Valerio, 1895. M. A. N. Rau.—p. 243.

Alastrim-Like Disease in Madras.—Cases of alastrim-like disease were noticed in Madras simultaneously with a severe epidemic of smallpox in 1925. The experimental evidence recorded by Turkhud and Pandit justifies the conclusion only that the disease belongs to a variolic family.

Estimating Quinine in Blood.—An acidified hundredth normal iodine solution has been found by Roy to give very good results in detecting a difference of 0.002 mg. in the alkaloid contents between the ranges of from 0.045 to 0.03 mg. in 5 cc., and a difference of 0.001 mg. between from 0.03 to 0.001 mg. in 5 cc. concentrations. With 5 cc. as the total volume, even the presence of 0.0005 mg., i. e., 1:10,000,000, can be detected when matched against 5 cc. of a saturated ammonium sulphate solution alone, to which the same quantity of the reagent has been added. With 2 cc. as the total volume, even the presence of 0.0001 mg., i. e., 1:20,000,000, can be detected, provided it is matched against a blank.

Wassermann Reaction in Malaria.—Lloyd and Mitra ask that the term "complement fixation reaction" be substituted for Wassermann reaction. They state that the presence of malarial parasites in the blood does not cause a positive Wassermann reaction when the latter is carried out by a method whose technic conforms to modern standards.

Silajit.—Silajit is an exudation from rock surface obtained in certain parts of India during May and June when the weather is very hot. Silajit is an important drug of the ancient Hindu materia medica, and is said to be efficacious in such conditions as phthisis, chronic bronchitis and asthma, digestive troubles, renal and bladder calculi, dropsy, nervous diseases, leprosy, diabetes, and fracture of bones. It is also used as an antiseptic in parasitic diseases of the skin and as an antiphlogistic. It is said that "under its influence thirst polyuria, burning sensation and exhaustion disappear quickly. It markedly helps the assimilation of sugar." The Hindu physicians use the drug in combination with milk or grape juice. A fairly complete chemical analysis of silajit has been

made by Chopra, Bose and Ghosh. It contains, besides gums, albuminoids, traces of resin and fatty acid, a large quantity of benzoic and hippuric acids and their salts. From a medicinal point of view, the chief active substance in it is benzoic acid benzoates. It was tried out thoroughly in eight cases of diabetes and found to be without effect on either the blood sugar content, or the urine sugar.

Schistosoma Incognitum.—In the course of examination for ova of freshly passed human stools collected in a village near Krishnagar, in Bengal, one specimen out of 120 was found by Chandler, which contained schistosoma eggs that differ from those of any species hitherto described. He designates this apparently new species by a distinctive name, *Schistosoma incognitum*.

Results of Administration of Sugar with Carbon Tetrachloride.—Experiments made by Chandler and Chopra indicate that administration of sugar simultaneously with carbon tetrachloride tends to delay death for a day or two; sugar given a few hours before carbon tetrachloride without a second dose simultaneously with it does not appear to have any protective effect. Administration of sodium citrate, tending to increase the alkalinity of the intestine, somewhat reduces the toxicity, while administration of dilute hydrochloric acid increases it. A magnesium sulphate purge also tends to reduce toxicity. Chandler and Chopra doubt whether administration of sugar, in the form of syrup, for example, toffee or other sweet confections, along with carbon tetrachloride would have any advantage in controlling the safety of the administration of this drug. They think that avoidance of starvation or a fat diet during its administration, and encouragement of a carbohydrate and protein diet, is sufficient. It is probable that administration of sodium citrate or sodium bicarbonate along with carbon tetrachloride would tend to reduce the amount of absorption, and thereby lessen the danger in its use. A purge undoubtedly helps in lowering the amount of absorption by hastening the elimination of the drug.

Irish Journal of Medical Science, Dublin

6: 393-568 (Sept.) 1926

Deep Roentgen-Ray Therapy in Nonmalignant Gynecologic Conditions. L. L. Cassidy and R. Stumpf.—p. 475.
Rotunda Lying-In Hospital Report for 1924-1925. G. FitzGibbon, R. M. Corbet and N. M. Falkiner.—p. 482.
Report of National Maternity Hospital. P. T. M'Ardle, A. Horne and A. Spain.—p. 521.
Polycystic Kidneys Complicating Pregnancy. J. S. Quin.—p. 543.

Japan Medical World, Tokyo

6: 199-227 (Aug. 15) 1926

Influence of Larvae of Flies on Postmortem Degeneration and Nature: I. S. Kishigami.—p. 199. (To be cont'd.)
H-Ion Concentration as Factor in Viability of Vaccine Virus. H. Yaoi and H. Kasai.—p. 207.
Epidemiologic Studies on Mice and Guinea-Pigs. T. Okamoto.—p. 210.

6: 229-260 (Sept. 15) 1926

Schistosomum Japonicum: Treatment with Stibnal. Y. Miyagawa.—p. 229.
Influence of Larvae of Flies on Postmortem Degeneration and Nature: II. S. Kishigami.—p. 232.
*Milk-Spots of Omentum: I. Y. Hamazaki.—p. 236.
Vaccination in Orient. E. R. Bull.—p. 242.

Milk Spots of Omentum.—Hamazaki concludes that the milk spots have a function similar to that of the spleen. The endothelium of the capillaries of the milk spots does not take the vital staining strongly as does the endothelium of venous sinus of spleen. But the milk spots are rich in capillaries, and some of them have often distended vessels like venous sinuses. These contain many wandering cells. These blood vessels are readily stimulated and cause diapedesis which is limited in the milk spots.

Medical Journal of Australia, Sydney

2: 401-434 (Sept. 25) 1926

Blood Groups of North Queensland Aborigines. D. H. K. Lee.—p. 401.
Points from Practice: Diagnostic and Prognostic. G. A. Sampson.—p. 410.
Id.: Treatment by Drugs. F. G. Meade.—p. 413.
Id.: Obstetric. C. Tucker.—p. 416.
Leprosy Acquired in Lazaret. G. R. Hamilton.—p. 420.

National Medical Journal of China, Shanghai

12: 279-347 (Aug.) 1926

Diagnosis and Treatment of Gallbladder Disease. S. C. Lowe.—p. 279.
*Malaria in Soochow. K. H. Li.—p. 284.
*Acute Mercuric Chloride Poisoning. L. Shih-Hao and A. S. Gault.—p. 297.
Common Sense. L. G. J. Mackey.—p. 306.
Action of Certain Alleged Intestinal Antiseptics. L. P. Garrod.—p. 316.
Reminiscences of Sir William Osler in England. W. Lien-Teh.—p. 328.

Malaria in Soochow.—Among 395 students of the Soochow University, 253 had had malaria; 49 per cent of these had an attack while attending school that year. In 1917, of 290 blood examinations made by Li for malaria, 76.5 per cent were positive. In 1919, malaria was the cause of 20 per cent of the deaths, and it infected 25 per cent of 1,371 inpatients. In 1919, 24 per cent of 1,075 patients in the hospital had malarial parasites by blood examination. In 1924, 33 per cent of the wounded soldiers cared for in the hospital wards were found to be infected by plasmodia. In the same year, 27 per cent of 350 students treated in the clinic had a diagnosis of malaria. Out of a total of 1,437 blood examinations of both the inpatients and the outpatients, 47.4 per cent were positive. Of the 850 inpatients, 22 per cent had malaria. A review of the records of ninety cases of malaria treated during 1924 revealed that malaria was most prevalent and severe during the month of November; the clinical manifestation was most varied, but complications were few in number; the estivo-autumnal type of infection was most common; malarial stippling of the red blood corpuscles was a distinctive feature of the blood changes associated with this type of infection; this stippling, if associated with a high large mononuclear count and tenderness over the splenic region, whether it is enlarged or not, is fair evidence of malarial infection even if the parasite cannot be found, and for treatment, quinine in doses of from 30 to 45 grains (2 to 3 Gm.) daily is, in the majority of cases, sufficient to combat the disease, although in a few cases neoarsphenamine has a distinct and prompt effect when used in conjunction with quinine.

Acute Mercuric Chloride Poisoning.—Shih-Hao and Gault report a case of mercuric chloride poisoning with acute nephritis, anuria and high nitrogen retention, followed by recovery. A few points on the pathologic physiology of acute nephritis following mercury poisoning are discussed. Stress is laid on the careful and vigorous treatment of every case of mercury poisoning, even though the outcome at first may appear hopeless. The sodium thiosulphate treatment of mercury poisoning, while worth trying in every case, cannot be relied on entirely, as its real efficacy has not yet been conclusively demonstrated.

Okayama Medical Journal, Okayama, Japan

440: 935-1054 (Sept.) 1926

Histologic Structure of Veins of Heart and Variations Due to Increasing Age of Persons. T. Sato.—p. 935.
Microscopic Structure of Arcus Aortae. K. Kumagai.—p. 943.
Pharmacologic Action of Bile Acids and Bile. Y. Takahashi.—p. 977.
Pathologic Changes Induced in Liver of Rabbit by Injection of Various Bacterial Toxins. A. Yokoh and M. Hayakawa.—p. 1014.
Behavior of Leukocytes Toward Various Artificially Applied Irritants. Y. Matsunami.—p. 1030.

Practitioner, London

117: 205-272 (Oct.) 1926

Surgeon's Interest in Studies of Blood. W. J. Mayo.—p. 205.
Complications Which May Follow Abdominal Operations; Treatment. H. J. Paterson.—p. 215.
Early Treatment of Faucial Diphtheria. J. H. Whitaker.—p. 222.
Laboratory Diagnosis of Typhoid Group. J. Menton.—p. 230.
So-Called Chronic Appendix. F. J. Hathaway.—p. 240.
Parietal Eminence in Rickets. J. W. McIntosh.—p. 252.
Artificial Sunlight and Skin Disease. W. F. Castle.—p. 258.
*Dupuytren's Contraction. L. Wainwright.—p. 263.

Dupuytren's Contraction.—Wainwright expresses the belief that the tertium quid in Dupuytren's contraction is endocrine deficiency, although heredity and (in some cases) palmar traumatism may have also a certain influence in the causation of the condition.

Bulletins de la Société Médicale des Hôpitaux, Paris

50: 1431-1437 (Oct. 8) 1926

Acrocephalia with Deformity of Elbows. E. Apert.—p. 1432.
Encephalitis from Smallpox Vaccination. J. Comby.—p. 1434.

50: 1439-1462 (Oct. 15) 1926

Encephalitis Following Smallpox Vaccination. M. Netter.—p. 1439.
*Tuberculin Reaction and Cancer. M. Renaud.—p. 1441.
"Prelocomotion" and Astasia-Abasia. G. Variot.—p. 1442. Summarized below.
Puerperal Septicemia from Bacillus Perfringens. E. Feuillié et al.—p. 1452.
Case of Agranulocytosis. C. Flandin.—p. 1459.

Skin Reaction to Tuberculin in Subjects with Cancer.—Renaud's research was made on fifty patients in various stages of cancer. The tuberculin reaction was positive in 72 per cent of thirty-two patients in the first stages. In eighteen patients with complicating cachexia, the reaction was insignificant or even negative. Evidently malignant tumor does not of itself modify allergy and is without direct influence on the general condition or on the body fluids.

Comptes Rendus de la Société de Biologie, Paris

95: 829-940 (Oct. 19) 1926. Partial Index

Insulin and Arterial Tension. L. Jung and L. Auger.—p. 833.
*Bactericidal Property of Pleural Effusions. P. Courmont and H. Gardère. —p. 837.
*Action of Physical Agents on Bactericidal Property of Pleural Effusions. P. Courmont and H. Gardère.—p. 839.
Action of Calcium Chloride on Sensitization and Shock. F. Arloing et al.—p. 845.
*Shock Glycemia in Decerebrate Animals. J. La Barre.—p. 855.
Method for Estimation of Pepsin. P. Spehl and C. Rahier.—p. 870.
*Vaccination Against Cerebrospinal Meningitis. R. Bruynoghe and P. Walravens.—p. 872.
Diphtheria Anatoxin for Fixation Reaction. N. Decamps.—p. 890.
*Removal of Thyroid and Casting of the Skin in Lizards. S. Drzewicki. —p. 893.
Effect of Pituitary Extracts on Urinary Excretion. W. Filinski and A. Fidler.—p. 906.
*Resistance of Hemolytic Staphylococci to Bacteriophage. T. Epstein and B. Fejgin.—p. 908.
*Blocking the Reticulo-Endothelial System and Glycemia. P. Demant.—p. 916.
*Reticulo-Endothelial System and Carbohydrate Metabolism. P. Demant. —p. 919.
Blood Groups and Dick and Schick Tests. R. Kaczynsky.—p. 933.

Bactericidal Action of Pleural Effusion on Tubercle Bacillus.—In Courmont and Gardère's research, about 0.5 cc. of the effused fluid of tuberculous pleurisy or of hydropneumothorax, mixed with 5.5 cc. of broth, killed tubercle bacilli within seven days, when the number in the culture did not exceed 2,000. When the bacilli numbered from 10,000 to 5,000,000, the result was retardation of their growth. The effusion was without effect when the number of the bacilli was larger than 5,000,000. The bactericidal property of the pleural effusion was reduced by filtration or age; heating did not destroy it. In its action it resembles leukin, a substance which may be extracted from leukocytes, rather than alexin.

Glycemia from Anaphylaxis and Histamine Shock in Decerebrate Animals.—La Barre induced anaphylaxis or histamine shock in guinea-pigs from which the brain, with or without the medulla oblongata, had been removed, and measured the sugar in the blood. The increase which usually follows shock was as rapid in these animals as in the controls. Evidently this hyperglycemia is due to excitation of the parasympathetic, which causes rapid transformation of the muscle and liver glycogen into free sugar.

Specific Vaccination in Cerebrospinal Meningitis.—Bruynoghe and Walravens used a meningococcus emulsion containing four thousand millions of bacilli per cubic centimeter. During an epidemic of cerebrospinal meningitis 15,000 persons were each given three subcutaneous injections of the emulsion, 0.5, 1 and 1 cc., respectively, at eight day intervals. In most cases the injections induced only a mild reaction. Two cases of meningitis occurred after the first injection, one after the second. The epidemic was arrested.

Influence of Removal of the Thyroid on the Skin in Lizards.—In Drzewicki's experiments on lizards, removal of the thyroid prevented casting of the skin. The skin became indurated and sight was impaired.

Resistance of Hemolytic Staphylococci to Bacteriophage.—Epstein and Fejgin's experiments in vitro showed that the hemolytic property of a strain of staphylococci parallels its resistance to the lytic principle. This fact, which they believe has not been mentioned before, may explain the high virulence and persistence of the hemolytic staphylococcus.

Blocking the Reticulo-Endothelial System and Glycemia.—In twenty-two fasting dogs the reticulo-endothelial system was blocked by intravenous injection of colloidal silver. The blood sugar increased by from 6 to 65 per cent, the rise starting half an hour after the injection. In another series of experiments, hyperglycemia thus induced was found to be less pronounced in starving animals than in the normally fed. It was almost entirely prevented when the blocking was preceded by administration of epinephrine or phlorizin. When the spleen had been removed, the blocking caused only a slight rise in the blood sugar. It is obvious, Demant says, that the reticulo-endothelial system takes part in the metabolism of carbohydrates.

Journal de Chirurgie, Paris

28: 113-256 (Aug.) 1926

Technic for Removal of Menisci of the Knee. C. Dujarier and J. Braine. —p. 113.
Extra-Articular Arthrodesis in Coxalgia. P. Mathieu and Wilmoth.—p. 130.
*Surgery of the Musculature of the Bladder. V. Richer.—p. 147.

Morphology and Surgery of the Vesical Musculature.—Richer sustains the theory that the muscular coat of the body of the bladder is one with that of its neck, and that the trigonal muscle presents an anatomic entity, as shown by its nerve supply. If this is so, the mechanism of micturition must be different from that usually taught. Opening of the vesical orifice during micturition would not result from an inhibitory action, but would be a phenomenon of contraction of the trigonal muscle. This contraction is demonstrable in certain urethroscopic and cystoscopic explorations. Particular lesions of the trigonal muscle are described, with the appropriate surgical procedure for each, and the various modern methods of treating incontinence or retention of urine, unconnected with a mechanical obstacle, are discussed.

Paris Médical

61: 277-288 (Oct. 9) 1926

*Syphilis of Uterus and Ovary. C. Audry.—p. 277.
*Nervous Phenomena of Colitis. R. Savignac et al.—p. 278.
Diathermy in Treatment of Hydrarthrosis of the Knee. H. Bordier.—p. 282.
Nicolle's Vaccine in Treatment of Chancroid. Krikorian.—p. 285.

Rôle of Syphilis in Female Genital Diseases.—Audry found syphilis in 50 per cent of his cases of cancer of the uterus. He considers that syphilis is also a frequent etiologic factor in metritis, with or without inflammation of the adnexa. The patients may be free from clinical signs of syphilis and the real nature of the metritis may be first revealed by the Wassermann test. Under antisyphilitic treatment this nongonococcus metritis is usually cured in three or four weeks without local measures. He thinks it not improbable that many cases of amenorrhea and menorrhagia are due to the presence of the spirochetes in the ovary. The genital organs of women seem to be involved in the syphilitic process at least as often as is the urogenital apparatus in man.

Nervous Manifestations with Colitis.—Savignac, de Fossey and Sarles state that general reactions are not observed in the first stage of colitis, which is limited to an ordinary dyspepsia. The second phase is characterized by intestinal putrefaction, with alkaline stools, associated with liver insufficiency. This is accompanied by hyperexcitability of the vagus. Spasm of the left colon, weakness and depression are the usual nervous phenomena. In diarrhea of the acid type, violent pain in the right iliac fossa and painful distention of the colon by gas are the symptoms of the third phase. High emotional tension and apprehension are the predominant nervous reactions, both possibly connected with chemical changes in the blood.

61: 289-316 (Oct. 19) 1926

Psychiatrics in 1926. Baudouin and N. Péron.—p. 289.
Recurrent Fever Treatment in Nervous and Mental Diseases. H. Claude et al.—p. 298.
Epilepsy of Cardiac Origin. L. Marchand.—p. 307.
Clinical Evolution of Dementia Praecox. G. Halberstadt.—p. 312.

61: 317-328 (Oct. 23) 1926

Pathologic Anatomy and Treatment of Duodenal Diverticulum. R. Grégoire.—p. 317.
*Vaccine Therapy of Abscess of the Lung. S. Livierato.—p. 322.
Sea Air Treatment of Anemia. A. Porcheron and M. Daufresne.—p. 326.

Autovaccine Therapy in Abscess of the Lung.—This treatment was successfully used in a case of abscess of the lung following pneumonia, in a man, aged 40. The vaccine was prepared from pus obtained by puncture of the abscess, and consisted of an ascitic fluid culture of streptococci, staphylococci and a gram-negative bacterium. First 50, then 100, 200 and 300 millions of bacteria were injected intramuscularly at intervals of one day. After the fourth injection, there were only a few râles in the lung, expectoration was much decreased and fetor had almost disappeared. A roentgenogram showed the pulmonary cavity reduced by two thirds. The patient was discharged in good condition three days later. Spiro Livierato is convinced that the favorable issue was due exclusively to the vaccine, not to spontaneous cure, since there was never any expectoration of pus.

Presse Médicale, Paris

34: 1265-1280 (Oct. 9) 1926

Venous Pressure in Hemoplegias and Traumatism of Skull and Brain. M. Villaret and D. Jonesco.—p. 1265.
*Explanation of Resistance to Hydrocyanic Acid. L. de Saint Rat.—p. 1268.
Agranulocytosis. J. Mouzon.—p. 1269.

Interpretation of Resistance to Hydrocyanic Acid.—De Saint Rat recalls an event of recent history, illustrating the property of glucose to neutralize the toxic action of hydrocyanic acid. It refers to the plot to poison Rasputin, favorite of the last empress of Russia, as told by an eye witness. On Dec. 16, 1916, hydrocyanic acid was placed (three hours in advance) in port wine, also in cream used for decorations on cakes. Rasputin drank two glasses of this wine, one after the other and ate the cakes, without experiencing any ill effects. Tests were made in order to explain the fact. Five grams of potassium cyanide was mixed with about 250 cc. of port wine. It appeared that 70 per cent of the cyanide was combined and transformed by the glucose in the wine in two and one-half hours. The presence of alcohol evidently accelerates the combination of the cyanide with reducing sugars and the formation of glucoheptonic acid. Neutralization of the hydrocyanic acid in the cream was due to the reducing sugar, lactose. It is probable that the lemon juice used for flavoring (a detailed receipt for the cream used for the cake was obtained) was able to transform a small quantity of saccharose into invert sugar, which combines with cyanide. The chemical reactions of sugars unveil the mystery of the "supernatural power" of the court favorite.

34: 1281-1296 (Oct. 13) 1926

Pathogenesis and Treatment of Cholecystitis Without Lithiasis. M. Chiray et al.—p. 1281.
*Therapeutic Value of Opiates in Hypertension. Bonjour.—p. 1283.
*Rôle of the Spleen in Nutrition and Growth. L. Binet.—p. 1284.

Codeine and Morphine in Treatment of Mental Disturbances with Hypertension.—Bonjour extols the use of codeine or morphine in hypertension complicated by mental disturbance, such as melancholia, manic depressive insanity or apprehension, or by insomnia, gastric or cardiac neuralgia or urinary incontinence. In cases observed by him, the pathologic phenomena disappeared as soon as the arterial tension became normal. The treatment starts with a daily dose of 0.001 or 0.002 Gm. of codeine. This dose is increased by the same amount in arithmetical progression every second or third day, and the treatment continued until the blood pressure becomes normal. According to the patient's condition and age, either codeine or morphine is prescribed. A mixture of the two is especially advisable in the hypertension and nervous phenomena of the menopause. The excellent results are ascribed exclusively to the vasodilator action of the alkaloid. Kidney lesions are a contraindication.

Morphology and Function of Supplementary Spleens.—In a dog with numerous hemorrhagic cysts of the spleen, Binet found supplementary spleens surrounding the pancreas. On histologic examination, these proved to be hemolymph glands. Since the animal appeared normal otherwise, he suggests that the supplementary spleens may have compensated for the functional incapacity of the diseased organ.

34: 1297-1312 (Oct. 16) 1926

*Resection of Jugular Vein in Thrombophlebitis. G. Portmann.—p. 1297.

Surgical Treatment of Thrombophlebitis of Internal Jugular Vein.—Portmann describes two cases of suppurative thrombophlebitis of the sinus and internal jugular vein of otitic origin. After curettage had failed in both, the involved part of the vein was resected in one case. This patient recovered, while the other died. The general condition improved rapidly after the resection. The wound healed in fifteen days; and the patient was discharged at the end of three months. Circulatory disturbances, such as local edema, or signs of cranial hypertension, have not appeared to date, an interval of several months. The man has been able to resume manual work.

34: 1313-1328 (Oct. 20) 1926

*Physiology of Sympathetic Ocular Fibers. R. Leriche and R. Fontaine.—p. 1313.
Endocrine Factors of Character. Laignel-Lavastine.—p. 1314.

New Physiologic Facts Concerning Sympathetic Fibers of the Eye.—Leriche and Fontaine conclude from their observations on cervical sympathectomy that certain fibers destined for the eye emerge from the cervical chain immediately above the first thoracic ganglion, whence they follow the vessels. Only a certain group of them remains in the cervical cord. A patient developed progressive ptosis on the corresponding side after ramisection with extirpation of the superior cervical ganglion. The clinical picture was that of paralysis of the elevator muscle of the upper eyelid. This ptosis was intermittent, vanishing with a certain position of the head. It disappeared almost completely after removal of a neuroma which had developed in the scar of the sympathetic incision. These facts seem to prove that ptosis secondary to cervical sympathectomy is not a passive, but an active phenomenon.

Progrès Médical, Paris

43: 1590-1620 (Oct. 23) 1926

Paralysis from Serum Treatment. V. de Lavergne.—p. 1597.
*Prelocomotion and Astasia-Abasia. G. Variot.—p. 1607.
Progressive Gonococcus Arthritis. Michel and Mondor.—p. 1612.

Prelocomotion as Physiologic Astasia-Abasia in Infants.—Variot calls "prelocomotion" the movements of a child made with the intention of moving from one place to another, before motor coordination in the muscles of the lower limbs and of the vertebral column is sufficiently complete to enable it to walk. The phenomena of astasia-abasia in older children or adults resemble those of prelocomotion. The patient is unable to stand or walk, but progresses on his hands and knees or by jerking forward the chair on which he sits. It is due to temporary inhibition of the nervous centers controlling locomotion. It occurs suddenly after fright or trauma, generally in persons with an hereditary neurosis. It may clear up within a month or may persist for a year or longer; also, it may recur.

Schweizerische medizinische Wochenschrift, Basel

56: 897-920 (Sept. 18) 1926

*Paracelsus. R. Netzhammer.—p. 897.
*Paracelsus' Ideas on Medicine. K. Sudhoff.—p. 902.
*Theophrastus Paracelsus. M. Kaelin-Benziger.—p. 908.
*Forensic Alcohol Determination. M. H. Remund.—p. 909.
Intermittant Colitis. A. Forel.—p. 915.

Paracelsus.—Three papers contained in this issue are devoted to the great Swiss physician, who started the revolution against classical authorities, and tried to supplant them by observation and experimentation. He favored chemistry as the basis of physiology, pathology and pharmacology. His description of mercurial and lead poisoning in workmen appears to be the first paper published on occupational diseases.

Forensic Alcohol Determination.—Remund discusses the medicolegal significance of the quantitative determination of alcohol in the blood and organs—especially the brain. The lay diagnosis of drunkenness is frequently wrong, to the serious detriment of the patient or his survivors. Very little alcohol is sufficient to cause an alcoholic breath; alcohol may have been used therapeutically in the dying, and clinical symptoms of other poisonings or of commotion of the brain may resemble those of alcohol intoxication. He reports a series of cases observed in the Zurich institute for forensic medicine. In some of them diagnosis was impossible—for instance, when the court wanted to have the alcohol concentration determined at necropsy eight days after the alleged intoxication.

Riforma Medica, Naples

42: 889-912 (Sept. 20) 1926

Campaign Against Tuberculosis. A. Ferrannini.—p. 889.
*Experimental Tumors. M. Lapidari.—p. 891.
Oxygen in Tuberculous Peritonitis. D. Maestrini.—p. 892.
Theory of Constitution. P. Castellino.—p. 894.
Treatment of Typhoid. A. Tarsitano.—p. 908.
Welfare of War Invalids. G. Pugliesi.—p. 911.

Experimental Tumors.—Lapidari confirms the inhibitory action of a diet consisting exclusively of polished rice on the development and course of inoculated chicken sarcomas.

Archivos de Endocrinología y Nutrición, Madrid

4: 153-203 (July-Aug.) 1926

Prognosis of Diabetes. P. Escudero and R. González Bosch.—p. 153.
*Early Diagnosis of Diabetes. G. Marañón.—p. 162.

Earliest Symptoms in Diabetes.—A table is given showing the first symptoms noted in 224 of 825 cases of diabetes: frequency and thirst, 59; loss of weight, 47; pruritus, 25; "rheumatic" pains, 16; pyorrhea, 17; asthenia, 14; boils or other skin lesions, 9; hunger sensation, 8; repeated abortions, 8; impotence, 5; cataract, 5; miscellaneous, 13. These symptoms mean that a chronic condition and permanent hyperglycemia already exist. Forty-two patients showed ketone bodies in the urine in addition to sugar. In 260, i. e., 31 per cent of the 825, there was a diabetic history in parents or other relatives. The hereditary taint may often be traced backwards, and a diabetic child lead to the discovery of an unsuspected prediabetic condition in the parent. Among predisposing infections, syphilis and oral sepsis are most important. There was hypertension in 70 per cent and obesity in 30 per cent. Among thirty-six cases of hypertension, 61 per cent gave high blood sugar. Itching is often the only sign of latent diabetes.

Ars Médica, Barcelona

2: 209-228 (Sept.) 1926

Vegetative Pyodermitis. J. Peyri.—p. 209.
*Unusual Sequel of Bismuth Therapy. J. Vanrell.—p. 211.
Vaccine Treatment of Gonorrhea. A. Raventós Moragas.—p. 214.

Lesion of the Glans from Bismuth.—An injection of a bismuth preparation in the buttocks was followed by cramps in the leg, ecchymosis, swelling and pain. The patient was confined to bed. Necrosis of the glans developed, but finally yielded to treatment. The patient had previously received arsphenamine, bismuth and merbaphen injections without mishap.

Revista Esp. de Obstet. y Ginecología, Madrid

11: 377-424 (Sept.) 1926

*Diagnosis of Appendicitis. C. A. Castaño.—p. 377.
*Toxemias of Pregnancy. A. Turenne.—p. 381.
Tear in Lower Portion of Uterus. R. Sánchez y Arcas.—p. 390.
*Ultraviolet Ray Treatment of Vulvar Pruritus. M. Gutiérrez Guijarro.—p. 392.

New Sign of Appendicitis in Women.—In many women, chronic appendicitis is announced by pain recurring two or three days before each menstrual period, sometimes lasting to the first day of menstruation. The pain is located in the lower abdomen and spreads as far as McBurney's point and down to the leg. Its restriction to the right side of the body differentiates it from the pain in ovarian or uterine dysmenorrhea.

Acidosis in Toxemia of Pregnancy.—In some toxemias of pregnancy, acidosis is either the chief or the only cause. Two of three cases got well with large doses of sodium bicarbonate (4 to 6 per cent) and glucose (15 per cent) solutions. Insulin must be left for the rebellious cases.

Ultraviolet Rays in Vulvar Pruritus.—In three cases ultraviolet rays stopped a vulvar itching of long standing. In one case, sugar was found in the urine and insulin was added to the treatment.

Revista Médica del Uruguay, Montevideo

29: 143-203 (Sept.) 1926

*New Serum Test for Leprosy. M. C. Rubino.—p. 143.
*Perforation of Duodenum and Gallbladder. G. J. Devincenzi.—p. 169.
Dangers of Pituitary Extract. L. Volonté.—p. 174.
*Ileus from Food. H. Valdez Olascoaga.—p. 183.
Fractures of Lumbar Transverse Processes. D. Lamas.—p. 198.

New Serum Test for Leprosy.—This new test proved positive in 78.1 per cent of thirty-two cases of leprosy, while negative in several hundred cases of other diseases, including tuberculosis, syphilis, nervous diseases and scarlet fever. It was positive, however, in one febrile case of tuberculous caseous pneumonia. The results do not run parallel to those of the Wassermann or the sedimentation tests. Roughly, this reaction consists in mixing equal volumes of specific serum and a formaldehyde-treated cell suspension. Leprous serums clear within the hour; the others remain opaque.

Ulcer Perforation of Duodenum and Gallbladder.—The abdomen was opened under a tentative diagnosis of perforated gastric ulcer. The duodenum, however, showed a swelling the size of a pigeon's egg, with a perforation in the center. There was a similar perforation in the gallbladder. The patient recovered.

Food as a Cause of Ileus.—In six cases the intestinal obstruction was caused by dried bananas or figs. Four patients died. Almost all were toothless and rather aged. There is a possibility that many of the so-called acute indigestions, some fatal, from eating fruits may actually be minor obstructions.

Semana Médica, Buenos Aires

33: 765-832 (Sept. 23) 1926

*Classification of Acromegaly. C. P. Waldorp.—p. 765.
Cerebrospinal Meningitis. M. Acuña and M. T. Vallino.—p. 780.
*Multiple Abdominal Echinococcosis. J. G. Fernández et al.—p. 792.
Nerve Supply of the Supinator Longus. P. Jáuregui.—p. 799.
Ayerza's "Black Cardiacs." T. Martini.—p. 805.
Schiassi's Treatment of Varicose Veins. O. F. Mazzini.—p. 807.

Classification of Acromegaly—Seven reported cases suggest that Hirsch's classification of cases of acromegaly as benign and malignant should be changed to simple and complicated, according to the presence or absence of optodiencephalic symptoms. This complication suggests a surgical operation.

Multiple Abdominal Echinococcosis.—In a 14 year old boy the original diagnosis had been peritoneal tuberculosis. On examination at the hospital, lumps, in clusters, were palpated in the epigastric region. Puncture confirmed the diagnosis of echinococcos disease. The cysts were so numerous that removal was out of the question. The postmortem examination showed that the entire abdominal wall as well as the diaphragm was strewn with cysts.

Beiträge zur Klinik der Tuberkulose, Berlin

64: 193-300 (Aug. 14) 1926. Partial Index

New Experiments with Tuberculin. P. Bergell and K. Schlapper.—p. 203.
Treatment of Tuberculous Pyopneumothorax. H. Brameseld.—p. 241.
Mixed Infection. Kirchner.—p. 247.
Bone Tuberculosis in the Roentgenogram. Kremer.—p. 250.
Pulmonary Calculi. H. Ritschel.—p. 260.
Artificial Pneumothorax. G. Schröder.—p. 263.
*Visualization of the Bronchial System. A. Schröter.—p. 269.
Bronchiectasis. Steinmeyer and Kathe.—p. 275.
Assmann's Infraclavicular Disease Foci. Warnecke.—p. 287.

Visualization of Bronchial System.—Schröter obtained useful pictures of the bronchi in two cases by injection of iodipin 10 per cent, but he considers the method not without danger and advises against its use except as a last resort in serious cases, where all other diagnostic methods have failed.

Biochemische Zeitschrift, Berlin

176: 1-250 (Sept. 14) 1926. Partial Index

Lactic Acid in Blood Plasma and Aqueous Humor. A. Wittgenstein and A. Gaedertz.—p. 1.
*Oxidation Catalysis by Epinephrine. J. Roest.—p. 17.
Determination of Micro-Nitrogen. H. J. Fuchs.—p. 32.
Nitrogen Equilibrium in Secretions in Normal and Disturbed Innervation of Glands. D. Alpern and L. Lindenbaum.—p. 62.
*Effect of Methylguanidine on Pancreatic Juice. R. Krimberg and S. A. Komarow.—p. 73.
*Toxin-Antitoxin Binding. H. J. Fuchs and M. v. Falkenhausen.—p. 92.
Protein in Lymph Glands and Suprarenals. M. M. Sabry.—p. 109.
Protein Bodies of the Ovary. E. Meiersdorf.—p. 127.
Catalase and Biologic Oxidation. S. Hennichs.—p. 155.
Quantitative Organic Microanalysis. G. Lunde.—p. 157.
Titration of Uric Acid in the Blood. L. Flatow.—p. 178.
Sulphate Content of Blood Serum and Aqueous Humor. W. Heubner and R. Meyer-Bisch.—p. 184.
*Chemistry and Specificity of Manoilow's Reaction. M. J. Galwialo et al.—p. 189.
*Physiologic Chemistry of Manoilow's Reaction. A. A. Schmidt and N. O. Perewosskaja.—p. 198.
Effect of Repeated Doses of Insulin. K. Waltner.—p. 246.

Oxidation Catalysis by Epinephrine.—Roest observed that epinephrine possesses the catalytic power to transport molecular oxygen for oxidation of paraphenylendiamin.

Effect of Methylguanidine on Excretion of Pancreatic Juice and Bile.—Krimberg and Komarow found that injection of methylguanidine stimulated the excretion of pancreatic juice and bile in the dog. The excretion of pancreatic juice increased slowly and reached its maximum from one to four hours after the injection.

A Chemically Measurable Toxin-Antitoxin Binding in Vitro.—Fuchs and Falkenhausen found that a specific toxin-antitoxin binding in vitro was characterized chemically by disappearance of the residual nitrogen of the mixture and by the formation of a protein which could be precipitated with 2.5 per cent trichloracetic acid. The residual nitrogen of the toxin and antitoxin participated to an equal extent in the formation of this protein.

Chemistry and Specificity of Manoilow's Reaction.—By changing the amount of the oxidizable reagents, the dye or the potassium permanganate of Manoilow's reaction compounds, Galwialo, Wladimirow, Winogradow and Oppel obtained male as well as female reactions with the same substratum.

Physiologic Chemistry of Manoilow's Reaction.—Schmidt and Perewosskaja claim that Manoilow's reaction in serum depends on the higher protein content of female blood. Female serum has a higher specific gravity than male, and contains on the average 8.5 per cent more protein.

Deutsche medizinische Wochenschrift, Berlin

52: 1581-1630 (Sept. 17) 1926

*Nontuberculous Pulmonary Hemorrhages. A. Hoffmann.—p. 1581.
Anesthesia in Labor. O. Pankow.—p. 1583. C'td.
*Anesthesia Tolerance and Shock Sensitiveness. E. Rehn and H. Killian.—p. 1585.
Maxillary Tissue Defects. C. Bruhn.—p. 1587.
*Rheobasis and Chronaxia. U. Ebbecke.—p. 1590.
Arsphenamine Resistance and Dosage. E. Hoffmann.—p. 1591.
*Psychogenic Reactions to Injury. G. Aschaffenburg.—p. 1594.
*Genuine Epilepsy. Tilmann.—p. 1595.
Action of Antipyretics. H. Freund.—p. 1597.
*Sympathetic Ophthalmia. A. v. Szily.—p. 1598.
Treatment of Gastric Ulcer. F. Momburg.—p. 1601.
Pneumoconiosis. A. Böhme and Lucanus.—p. 1603.
Treatment of Cleft Lip and Palate. F. Hohmeier.—p. 1604.
Children Endangered by Tuberculosis. S. Engel.—p. 1606.
*Death by Electricity. H. Schridde.—p. 1607.
*Malaria Treatment of Gonorrhea. R. Lenzmann.—p. 1608.
Traffic Accidents. A. Nehrkorn.—p. 1610.
Malaria Treatment of Tabes. F. Bering.—p. 1611.
Johannes Müller's Most Beautiful Letter. W. Haberling.—p. 1613.

Nontuberculous Pulmonary Hemorrhages.—Hoffmann finds that in cases of hemorrhage from the lungs physicians are apt to think of pulmonary tuberculosis to the exclusion of the possibility of mitral stenosis.

Anesthesia Tolerance and Shock Sensitiveness.—Rehn and Killian anesthetized rabbits, opened the abdominal cavity and irritated the intestines by various means. Under chloroform or ether anesthesia, the blood vessels of the abdominal cavity gradually dilated and the blood pressure fell. Anesthesia of this type evidently contributes to the surgical shock. Acetylene anesthesia increased the blood pressure. This confirms Schmidt's clinical observation on the contraction of the abdominal vessels in such cases. This great advantage is partly offset by the dilatation which follows acetylene anesthesia. Acidosis produced by administration of ammonium chloride injured the animal when chloroform anesthesia was used; the injurious effect was less with ether, nil with acetylene. Alkalinization seemed to have a favorable effect. Acetylene itself did not induce acidosis—it was especially noted that there was not a decrease in the alkali reserve. Chloroform and ether cause acidosis, and it seems that with these anesthetics the respiratory center does not react sufficiently to the increased concentration of hydrogen ions.

Rheobasis and Chronaxia.—Ebbecke gives a good—almost popular—illustration of the conception of chronaxia, defined as minimum duration of stimulating current whose potential is twice that of the rheobasis (minimum potential necessary for stimulation). He attributes the prolongation of chronaxia in pathologic conditions to an increased permeability of the physiologic membranes.

Psychogenic Reactions to Injury.—Although Aschaffenburg does not differ greatly from his fellow neurologists on the practical management of so-called traumatic neurosis, he regrets that the twenty-fifth congress of German neurologists was almost unanimous in regarding such subjects simply as morally deficient and as swindlers. He thinks that this emphasis on moral inferiority should not prevent the study of the relations between psychic experiences and psychogenic reactions.

Genuine Epilepsy.—Tilmann found pathologic changes on the surface of the brain in all his cases of epilepsy. In three fourths of the patients the pressure of the cerebrospinal fluid was increased and there was chronic inflammation of the arachnoid.

Sympathetic Ophthalmia.—Szily discusses his method of experimental induction of sympathetic ophthalmia in animals by inoculation with herpes virus. The result is at least a good model of the human disease.

Entrance of Current in Death by Electricity.—Schridde's new statistics confirm his former observation that in almost nine tenths of the fatal cases the electric current enters through the left upper extremity. Death is due to the passing of the current through the heart.

Malaria Treatment of Gonorrhea.—Lenzmann observed disappearance of gonococci after malaria inoculation in a few patients with chronic gonorrhea and syphilis. He utilized this observation for the treatment of chronic cases of gonorrhea and reports cures in all his five male patients and in fifty-three out of sixty-eight women.

52: 1631-1670 (Sept. 24) 1926

Endocrine Periarthritis. Umber.—p. 1631.
Physical Chemistry and Therapeutics. H. Handovsky.—p. 1633.
Postanginous Pyemia. W. Uffenorde.—p. 1635.
Antitoxic Serums. A. Wolff-Eisner and J. Jahr.—p. 1638. C'td.
Anesthesia in Labor. O. Pankow.—p. 1640. C'cn.
*Gastric Secretion and Acid-Base Balance. W. Arnoldi and M. Schechter.—p. 1642.
Combination of Synergists. E. Bürgi.—p. 1645.
Mesenteric Lymphadenitis. E. Mühsam.—p. 1646.
*Immunization Against Tuberculosis. A. Moeller.—p. 1647.
Leukocyte Counts. W. Zangemeister.—p. 1648.
Weight and Hockey. E. Glass and P. Erichson.—p. 1649.
A New Hemometer. F. Seligsohn.—p. 1650.
Mayonnaise Lotion in Skin Diseases. M. Oelze-Rheinboldt.—p. 1652.
Treatment of Skin and Venereal Diseases. F. Dietel.—p. 1653.
Typhoid Carriers and Traffic in Food. K. Tiling.—p. 1655.
Insurance for Lawyers and Physicians. S. Alexander.—p. 1655.
"Mechanism of Hemostasis." Addendum. P. Morawitz.—p. 1658.

Gastric Secretion and Acid-Base Equilibrium.—Arnoldi and Schechter observed increased elimination of acid, phosphates, urea and ammonia after the alcohol test meal. In some of the cancer patients only did the urea and ammonia excretion remain the same. They believe that the hyperacidity syndrome resembles some features of diabetes, and attribute changes in the secretion of hydrochloric acid in the stomach to alterations in carbohydrate metabolism.

Immunization Against Tuberculosis.—Having first carried out the experiment on himself, Moeller rubbed living tubercle

bacilli into the skin of several tuberculosis patients and observed improvement. His working hypothesis was based on the observation of antagonism between tuberculosis of the skin and that of internal organs.

Klinische Wochenschrift, Berlin

5: 1689-1736 (Sept. 10) 1926

*Vasomotor Disturbances. K. Neubürger.—p. 1689.
*Respiration of Tissues. E. Meyer and A. Reinhold.—p. 1692.
Metabolism in Obesity. S. Lauter.—p. 1696.
*Action of Arsphenamine. R. L. Mayer.—p. 1699.
Calcification of the Media. H. Müller.—p. 1703.
Testing the Polygraph. R. Ohm.—p. 1706.
Hasheesh Intoxications. E. Joël and F. Fränkel.—p. 1707.
*Permeability. D. Engel and A. Kerekes.—p. 1709.
Physiology of Diabetes. F. W. Krzywanek.—p. 1710.
*Oxygen Consumption After Exertion. H. Herxheimer et al.—p. 1711.
Congenital Syphilitic Aortitis. F. Reiche.—p. 1711.
Congenital Myatonia. R. Hamburger.—p. 1712.
*Social Status and Development of Children. M. Zellner.—p. 1716.
Teaching Physical Therapy. Grober.—p. 1734.

Vasomotor Disturbances.—Neubürger reviews the significance of vasomotor disturbances for the pathogenesis of hemorrhages, especially in the brain and spinal cord. Recently it was shown that ruptured miliary aneurysms account for only a small fraction (about 13 per cent) of hemorrhages in the brain. The bleeding occurs as a rule from a large number of small blood vessels. Necrosis of parts of the brain in eclampsia, in carbon monoxide and lead poisoning and even in some cases of traumatic hemorrhage may be wholly or partly explained by functional ischemia.

Respiration of Tissues in Vivo.—Meyer and Reinhold used a method described by Vierordt in 1878 and since forgotten: When a fold of the skin—for instance between the fingers—is clamped off, it is easy to follow spectroscopically a change of oxyhemoglobin into hemoglobin. The reduction time is prolonged if the skin is injured by previous clamping or by infiltration with physiologic solution of sodium chloride. Urethan is without influence, asphyxia shortens the reduction time—as Vierordt had found already. Injections of milk or typhoid vaccine shorten the time. This action is evident for several days. Caffeine also accelerates the reduction of oxyhemoglobin. As is to be expected, the reduction time is shorter in exophthalmic goiter than in healthy subjects.

Action of Arsphenamine.—Mayer found that a solution of neo-arsphenamine kept for several days in an open vessel becomes much more toxic for mice and much less toxic for paramecia. The increased toxicity for mice seems to be due only partly (about 10 per cent) to the formation of arsenoxide. The main cause seems to be an oxidation localized in the amino group. Arsphenamine as well as neo-arsphenamine reduces oxyhemoglobin in vitro and changes it into methemoglobin. The speed with which this change is accomplished varies widely in different species. Mayer finds a parallelism between this speed and the therapeutic index in various animals.

Permeability.—Engel and Kerekes injected animals with various dyes and studied the elimination into the peritoneal cavity. Acid dyes—including acid methyl orange which is soluble in lipoids—were eliminated, basic dyes—including the lipoid-insoluble thionin and methyl green—were retained by the organism. Consequently it is the reaction of the dye, not its solubility in lipoids, which matters. When they acidified a frog by administration of boric acid, the acid dyes did not appear in the peritoneal fluid; in animals alkalized by sodium bicarbonate they were eliminated better than in normal frogs.

Oxygen Consumption After Exertion.—Herxheimer, Wissing and Wolff observed an increase in oxygen consumption lasting for a day after vigorous muscular exertion.

Social Status and Development of Children.—Zellner measured children of the preschool age (2 to 6 years). He found that those from well-to-do families are taller, those from poorer familes broader. The weight in the former group averaged more, but was less in relation to height than in the poorer class.

5: 1737-1808 (Sept. 17) 1926

Rhineland and Medicine. W. Haberling.—p. 1740.
Medical Academy at Düsseldorf. W. Krauss.—p. 1745.
Municipal Hospitals in Düsseldorf. A. Hoffmann.—p. 1747.
Fundamentals of Inflammation. P. Huebschmann.—p. 1751.
*Habituation to Poisons. F. Hildebrandt.—p. 1755.
Hemorrhage in Acetylene Anesthesia. F. Hildebrandt et al.—p. 1756.
Paroxysmal Tachycardia. A. Hoffmann.—p. 1758.
Insulin-Epinephrine Antagonism. Boden et al.—p. 1761.
Retrograde Dispersion of Hard Rays. H. T. Schreus.—p. 1762.
Surgery and Organ Function. E. Rehn.—p. 1764.
Roentgen-Ray Examination in Surgical Urology. P. Janssen.—p. 1770.
Protein Treatment in Gynecology. O. Pankow.—p. 1773.
*Intracranial Hemorrhage in the Stillborn. L. Schoenholz.—p. 1775.
Ophthalmobiology. W. Krauss.—p. 1777.
General Treatment of Glaucoma. W. Wick.—p. 1779.
Streptococcus Mucosus Otitis. B. Oertel.—p. 1780.
Paresis of Abductors of Larynx. H. Dahmann.—p. 1783.
*Anthracosis and Tuberculosis. A. Schlossmann.—p. 1786.
Lipoid Nephrosis in Children. A. Eckstein.—p. 1787.
*Sex and Course of Infection. S. Meyer.—p. 1791.
Reaction of Salves. C. Stern.—p. 1794.
Morphinism. F. Sioli.—p. 1797.
Mental Sequelae of Encephalitis. R. Neustadt.—p. 1800.
Hygiene and the Natural Sciences. Bürgers.—p. 1802.
Prevention of Colds. W. Bachmann and L. Fleischer.—p. 1804.
Difficulties with Death Certificates. Berg.—p. 1806.
War Malaria. E. Graf.—p. 1807.

Habituation to Poisons.—Hildebrandt points out that there is a difference between drugs to which the organism may become accustomed, and those which it learns to crave without increasing its tolerance. The former—such as morphine—may be taken in increasing doses, since, in addition to the nerves becoming less sensitive to them the habituated organism destroys them. After the habit is broken, the addict, if he takes it up again, has to start with small doses. Cocaine belongs to the second group, where it seems that only individual resistance determines the dose. The latter is not increased after the addict finds his optimum, but is repeated at shorter intervals to reproduce the desired sensations. In this respect alcohol resembles morphine, but the craving is not so strong and it seems that the organism learns to utilize it in the metabolism. Caffeine and nicotine do not seem to induce much habituation.

Diagnosis of Intracranial Hemorrhage in the Stillborn.—Schoenholz injects a contrast substance into a jugular vein in stillborn infants. If there has been intracranial hemorrhage, the mass spreads and may be seen with the roentgen rays.

Anthracosis and Tuberculosis.—Schlossmann injected a suspension of soot in oil intravenously and thereby produced anthracosis of the lungs. Tuberculosis was not unfavorably influenced by such injections.

Sex and Course of Infection.—Meyer found characteristic differences in the course of common infectious diseases according to the sex of the patients. Grave toxic and septic symptoms were more frequent in boys than in girls.

Medizinische Klinik, Berlin

22: 1437-1474 (Sept. 17) 1926

Plastic Surgery of the Breast. G. Axhausen.—p. 1437.
*Diagnostic Liver Puncture. J. Olivet.—p. 1440.
Constipation. L. v. Friedrich.—p. 1443.
Arterial Hypotension. F. Munk.—p. 1444. C'cn.
Treatment of Purulent Peritonitis. R. Pamperl.—p. 1446.
Prostitution and Bismuth Treatment. H. G. Rottmann.—p. 1447.
Treatment of Empyema Cavities. Bernholz.—p. 1450.
Incarcerated Hernia in an Infant. H. Praetorius.—p. 1452.
*Arthritis After Insolation. G. Löffler.—p. 1452.
*Hemolytic Jaundice. J. Neuburger.—p. 1453.
Rheumatic Periostitis. H. Grundmann.—p. 1454.
*Diagnosis by Smell. G. Hauffe.—p. 1455.
Lumbar Puncture. H. Hoffmann and E. Konrad.—p. 1456.
"Herpes" and "Zoster" Bodies. B. Lipschütz.—p. 1456.
Endocarditis Not from Occupational Injury. v. Schnizer.—p. 1459.
Tuberculosis Research. H. Gerhartz.—p. 1461.

Diagnostic Liver Puncture.—Olivet reports on 140 diagnostic punctures of the liver (Bingel's method). The procedure killed three of his patients and failed in twelve.

Arthritis After Insolation.—Löffler saw acute arthritis develop in a man after a sun bath which caused a generalized dermatitis.

Hemolytic Jaundice.—Neuburger reports a case of typical hemolytic jaundice of long duration, with a glossitis identical

with that observed in pernicious anemia. The stomach secretion was hyperacid; achylia, however, may also occur in hemolytic jaundice.

Diagnosis by Smell.—Hauffe tells of a physician who, becoming blind, was able to diagnose measles and scarlet fever by the smell.

Monatsschrift für Kinderheilkunde, Leipzig

33: 193-288 (Aug.) 1926

*Grave Icterus in the New-Born. W. Hoffmann and M. Hausmann.—p. 193.
Leukocytes in Infants and Children. F. Heissen.—p. 225.
"Expectant Treatment of Diphtheritic Stenosis of the Larynx." F. Hamburger.—p. 244.
Pathology of Tuberculosis. K. Preisich.—p. 247.
Constitutional Therapy in Pediatrics. C. Coerper.—p. 249.

Grave Icterus in the New-Born.—Hoffmann and Hausmann report fifteen cases of severe icterus during the first two years of life. If the disease was not fatal, it resulted in idiocy or imbecility. The children all belonged to four families and the authors believe that the condition was the result of toxicosis of pregnancy recurring through a series of pregnancies, as frequently happens. It generally ran a latent course in the mother, manifesting itself in the fetus as the more sensitive organism. Hemolytic toxins formed in the mother's intestinal tract or endocrine glands or in the placenta might have caused the pathologic decomposition of the fetal blood. There is always functional impairment of the liver, even though an anatomic lesion may not be demonstrable. Breast milk is the best food, but whether or not the milk of the child's mother should be forbidden, on the ground of the toxicosis, is an open question.

Münchener medizinische Wochenschrift, Munich

73: 1547-1602 (Sept. 17) 1926

Viewpoints in Internal Medicine. L. v. Krehl.—p. 1547.
*Nervous System and Spirochetosis. F. Plaut.—p. 1552.
*Diagnosis of Syphilis by Animal Experiment. P. Mulzer.—p. 1555.
Fulminating Purpura. P. Morawitz.—p. 1558.
*Charcoal and Putrefaction Products. E. Becher.—p. 1561.
Research on Twins. O. F. v. Verschuer.—p. 1562.
*Insulin in Nondiabetics. Jaksch-Wartenhorst.—p. 1565.
Treatment of Cancer. E. Opitz.—p. 1567.
Active Movements of Cervix. H. Hinselmann and H. Korallus.—p. 1577.
Serodiagnosis of Tuberculosis. H. Lehmann-Facius and H. Loeschcke.—p. 1578.
Roentgen Irradiation of Acute Inflammation. R. Schüler.—p. 1580.
*Psychology of Sportsmen. W. Ruhemann.—p. 1580.
Benedict's Gas Metabolism Determination. E. A. Müller.—p. 1582.
Freezing. L. v. Zumbusch.—p. 1584.
Institutes for Physiologic Chemistry. F. G. Hopkins.—p. 1586.

The Nervous System and Spirochetosis.—Rabbits have been supposed to be immune to Dutton's spirochetes, but Plaut found that suboccipital injections of infected blood regularly caused infection of the brain and changes in the cerebrospinal fluid in these animals. Intraperitoneal inoculation did not induce pathologic changes in the cerebrospinal fluid, but the brains of the rabbits contained virulent spirochetes.

Diagnosis of Syphilis by Animal Experiment.—In doubtful cases Mulzer recommends inoculation of the blood or papules into the testes of rabbits. If the result is apparently negative, the testis or the popliteal lymph nodes of these rabbits should be used to inoculate fresh rabbits, which may develop manifest syphilis. He relates instances of successful experimental infection of rabbits through the intact vagina, without development of a primary chancre. The real value of the method was demonstrated in the case of a young physician with a doubtful exanthem and strongly positive Wassermann reaction. The patient denied any possibility of infection and refused treatment, believing the diagnosis wrong, until the experiment on rabbits proved it correct.

Charcoal and Putrefaction Products.—Becher found that shaking urine or blood with charcoal removes from it all the products of intestinal putrefaction. The same method removes the chromogens present in the pale urine and serum of nephritis. He discusses the outlook for treatment of insufficiency of the kidney by large doses of charcoal.

Insulin in Nondiabetic Patients.—Jaksch-Wartenhorst saw only aggravations from the treatment of anemia—especially pernicious anemia—by insulin. Some transitory improvements in exophthalmic goiter have been observed. Enteroptosis reacted extremely well to insulin. In liver diseases it gave good results, which were especially evident in the disappearance of jaundice.

Psychology of Sportsmen.—Ruhemann prefers competitions to simple exercises. Athletics are of especial value in adolescents, because they direct interest away from the other sex. He believes that the homosexual tendencies which frequently develop in athletic youths are partly phenomena of puberty, partly constitutional anomalies—and not due to environment. Athletics should be kept up even in later years. Ambition should be curbed by explaining that athletics are only a means to higher ends. He mentions the occasional breaking down of an athlete during a game. It never occurs in the winner, but regularly is a defense reaction to some failure.

Zeitschrift für Immunitätsforschung, etc., Jena

48: 97-296 (Sept. 16) 1926

Anaphylaxis to Lipoids. A. Klopstock.—pp. 97 and 141.
*Splenectomy and Arsphenamine. N. W. Kolpikow.—p. 182.
Studies on Diphtheria Toxin. E. Hoen et al.—p. 191.
*Rieckenberg's Reaction in Experimental Recurrent Fever. W. Krantz.—p. 207.
Diphtheria Toxin-Antitoxin Flocculation. H. Schmidt.—p. 217.
Bactericidal Substances in Animal Serums. A. Pettersson.—p. 233.

Splenectomy and Therapeutic Effect of Arsphenamine.—Kolpikow injected Dutton's spirochetes in normal and splenectomized mice and found that 91 per cent of the splenectomized animals resisted the sterilizing action of arsphenamine. Blocking of the reticulo-endothelial cells, together with the splenectomy, reduced the percentage to 73, but blocking alone did not influence the therapeutic effect of the drug. In normal mice the spirochetes disappeared from the blood the day after treatment with arsphenamine. In splenectomized mice, the number of spirochetes present in the blood the day following treatment decreased with the time that had elapsed between the removal of the spleen and the injection of the spirochetes. It was 2.4 per cent of the original number when the interval was fifty-nine to seventy-one days and 23.5 per cent when it was twenty-one days.

Rieckenberg's Reaction in Experimental Recurrent Fever in Mice.—Rieckenberg's observation, that in immune serum trypanosomes adsorb blood platelets, has been adapted by Krantz to experimental recurrent fever. He found that only living spirochetes conglutinated with blood platelets. The active antibodies in Rieckenberg's reaction (thrombocytobarins) do not appear after injection of devitalized spirochetes, but only after infection. Instead of blood platelets, bacteria can be used as the "indicator." Spirochetes which have once been used in the blood platelet reaction will not react a second time.

Ugeskrift for Læger, Copenhagen

88: 835-854 (Sept. 16) 1926

*Anemia in Nephritis and Infections. H. C. Gram.—p. 835.
Albumin-Globulin Ratio in the Urine. T. Geill.—p. 838.
*Syphilis and the Kidneys. T. W. Tallqvist.—p. 843.

Anemia in Nephritis and Infections.—Gram measured the cell volume and refractometric index of the blood in ten normal persons, in 19 with infections and 7 with nephritis. He found that in infections a low hemoglobin percentage could not be accounted for by increase in the total amount of blood plasma. In nephritis increase in the plasma seems to be a factor in the origin of low grade anemia. Severe anemia in nephritis depends on decrease in the total quantity of erythrocytes.

Syphilis and the Kidneys.—Tallqvist reports two cases of renal syphilis, one in a man, aged 21, and another in a woman, aged 44. The first case was characterized by lipoid degeneration. In the second case examination for lipoids was not made. Hygienic and dietetic measures had little effect on the course of the disease. Arsphenamine and mercury seemed to give better results. If acute syphilitic nephrosis does not clear up, it develops into a chronic form. In forty-five years he has seen six cases of chronic syphilitic nephrosis. Nephrosclerosis was present in nine of his twenty-three cases of nephritis with syphilis in the history or with a positive Wassermann reaction. He advocates mercury and arsphenamine in small doses as the best treatment for renal syphilis.